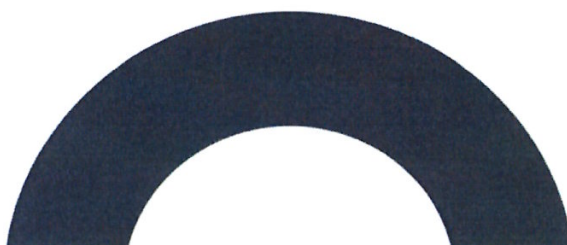




APPENDIX 6-1

BAT SURVEY REPORT

Bat Report





DOCUMENT DETAILS

Client: Sky Castle Ltd.

Project Title: Sky Castle Ltd – Moygaddy Mixed Use Scheme, Co. Meath & Co. Kildare

Project Number: 210414

Document Title: Bat Report

Document File Name: BR D2 – 210414 – 2022.08.30

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Planning and
Environmental
Consultants

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1. INTRODUCTION

MKO was commissioned to undertake a bat survey for a proposed Mixed-Use Scheme at Moygaddy, Co. Meath and Co. Kildare. (Grid Ref: N 94468 39390).

MKO undertook two dusk and one dawn bat activity surveys in 2021 and a bridge inspection in August 2022, within the site of the proposed development works. The main objective of the surveys was to gather information on roosting, commuting, and foraging bats using the site and to identify any important features for bats. Three full spectrum bat detectors, Song Meter SM4BAT (Wildlife Acoustics, Maynard, MA, USA), were deployed for the duration of the survey period (4 weeks) to record bat activity at six fixed locations.

The bat survey and assessment were informed by a desk study and with reference to the following guidelines:

- *Bat Surveys for Professional Ecologists – Good Practice Guidelines (3rd edn.) (Collins, 2016)*
- *Bat Roosts in Trees (Andrews, 2018)*
- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (NRA, 2006a)*
- *Guidelines for the Treatment of Bats during the Construction of National Road Schemes (NRA, 2006b)*
- *British Bat Calls: A Guide to Species Identification (Russ, 2012)*
- *Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25. (Kelleher & Marnell, 2006)*
- *Bat Mitigation Guidelines for Ireland – V2. Irish Wildlife Manuals, No. 134. (Marnell, Kelleher & Mullen 2022)*
- *Guidance Note 08/18: Bats and Artificial Lighting in the UK (ILP, 2018)*

1.1 Policy and Legislation

All Irish bats are protected under European legislation, namely the Habitats Directive (92/43/EEC). All Irish species are listed under Annex IV of the Directive, requiring strict protection for individuals, their breeding sites and resting places. The Lesser horseshoe bat (*Rhinolophus hipposideros*) is further listed under Annex II of the Directive, requiring the designation of conservation areas for the species. Under this Directive, Ireland is obliged to maintain the favourable conservation status of Annex-listed species. This Directive has been transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011).

In addition, Irish species are further protected by national legislation (Wildlife Acts 1976-2021). Under this legislation, it is an offence to intentionally disturb, injure or kill a bat or disturb its roost. Any work at a roost site must be carried out with the agreement of the National Parks and Wildlife Service (NPWS) and a derogation licence must be granted before works commence.

1.2 Statement of Authority

The bat surveys were undertaken by MKO ecologists Tim Murphy (BSc.), Neil Campbell (BSc.) and Kevin McElduff (BSc.) who have over 1 years' experience in ecological consultancy. All staff have relevant academic qualifications to complete the surveys and assessments that they were required to do. This report was prepared by Tim Murphy (BSc.) and was reviewed by Aoife Joyce (BSc., MSc.). Aoife has over three years' experience in ecological assessments and has completed CIEEM and BCI courses in Bat Impacts and Mitigation, Bat Tree Roost Identification and Endoscope training and Kaleidoscope Pro Analysis.



2.

CHARACTERISTICS OF PROPOSED DEVELOPMENT

The proposed development site is located in the townland of Moygaddy, Maynooth Environs, Co. Meath and Co. Kildare (Grid Ref: N 94468 39390).

Sky Castle Ltd. intends to submit to a total of six planning applications as part of the Moygaddy Mixed Use Development (henceforth referred to as the Proposed Development). A total of three planning applications will be submitted to Meath County Council as the competent authority. One planning application seeks to provide a Strategic Employment Zone (Biotechnology & Life Sciences Campus) (Site A), the second planning application for Community Infrastructure which includes a Nursing Home and Primary Care Centre (Site B), and the third planning application for the delivery of the proposed Maynooth Outer Orbital Road (MOOR).

A planning application for a Strategic Housing Development (SHD) (Site C) will be submitted to An Bord Pleanála under the Strategic Housing Provisions of the Planning and Development (Housing) and Residential Tenancies Act, 2016.

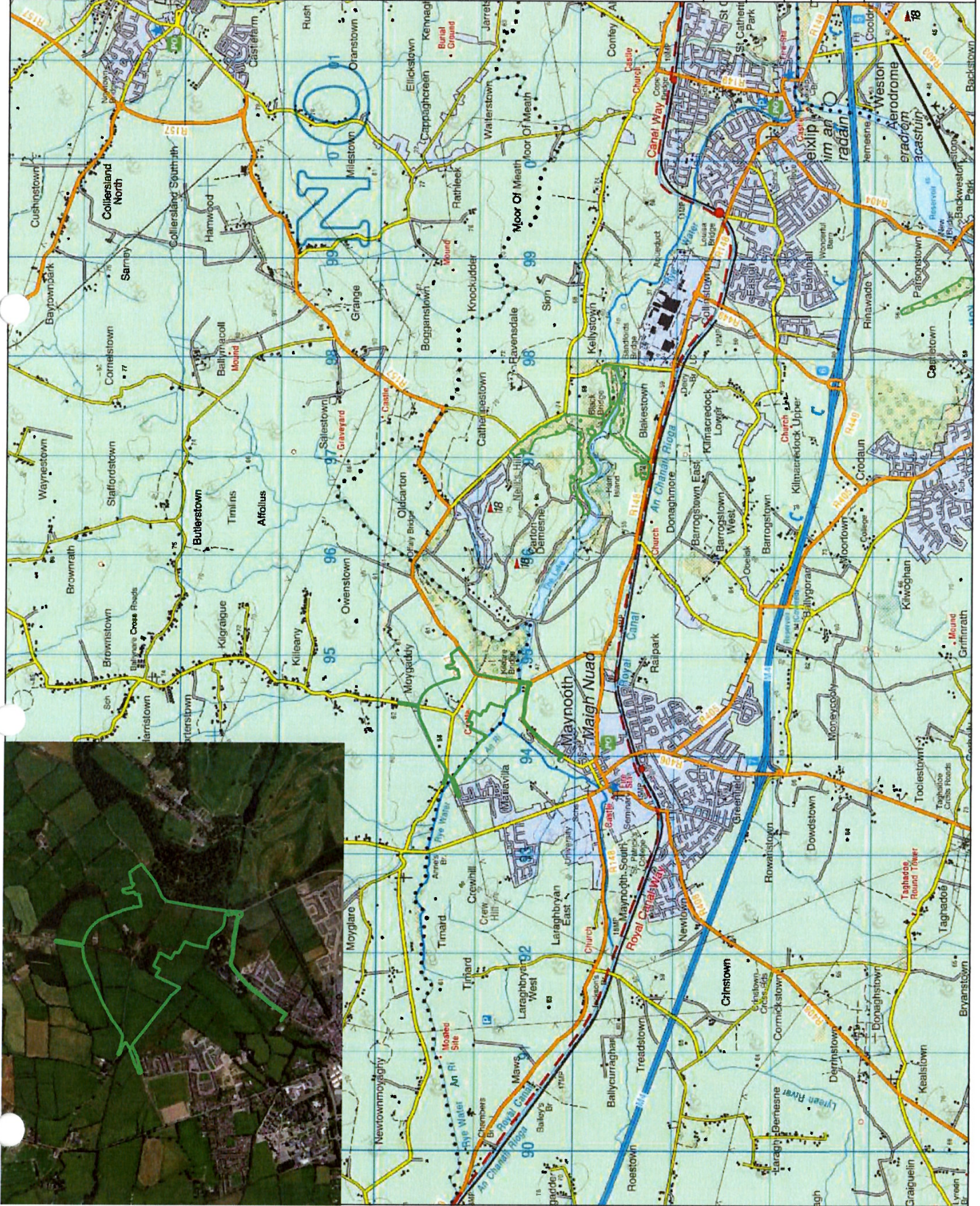
There will also be two separate planning applications submitted to Kildare County Council (KCC) for shared infrastructure, proposed services and utilities connections to Maynooth town in County Kildare. One planning application to KCC includes a proposed pedestrian / cycle bridge adjacent to the existing Kildare Bridge, as well as a proposed wastewater connection to the Maynooth Municipal Wastewater Pumping Station to the southeast of the Proposed Development. The second planning application to be submitted to KCC is located to the southwest of Site C (SHD) for the provision of an integral single span bridge over the River Rye Water with associated flood plain works and embankments.

Figures 2-1 and 2-2 show site location and site boundaries.

 EIAR Site Boundary

Drawn By	CM	Checked By	CM
Project No.	210414	Drawing No.	Figure 2-1
Scale	1:49,500	Date	2022-08-30

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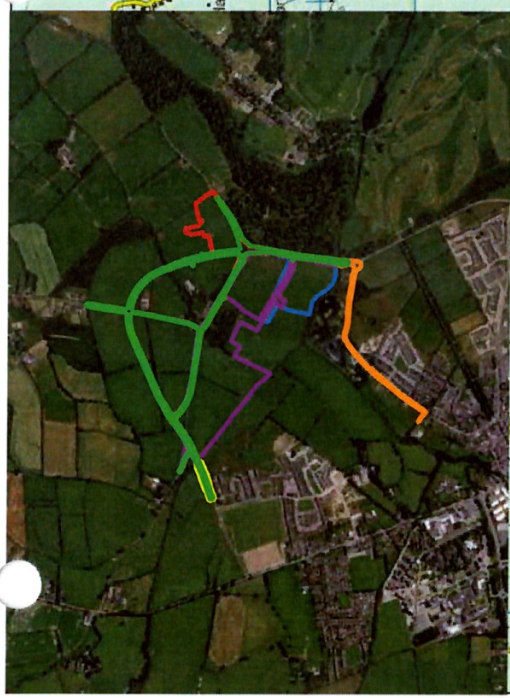


C

C

C

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Map Legend

- Site A - Strategic Employment Zone
- Site B - Healthcare Facilities Development
- MOOR- Maynooth Outer Orbital Road
- Kildare Bridge
- Moyglare Bridge

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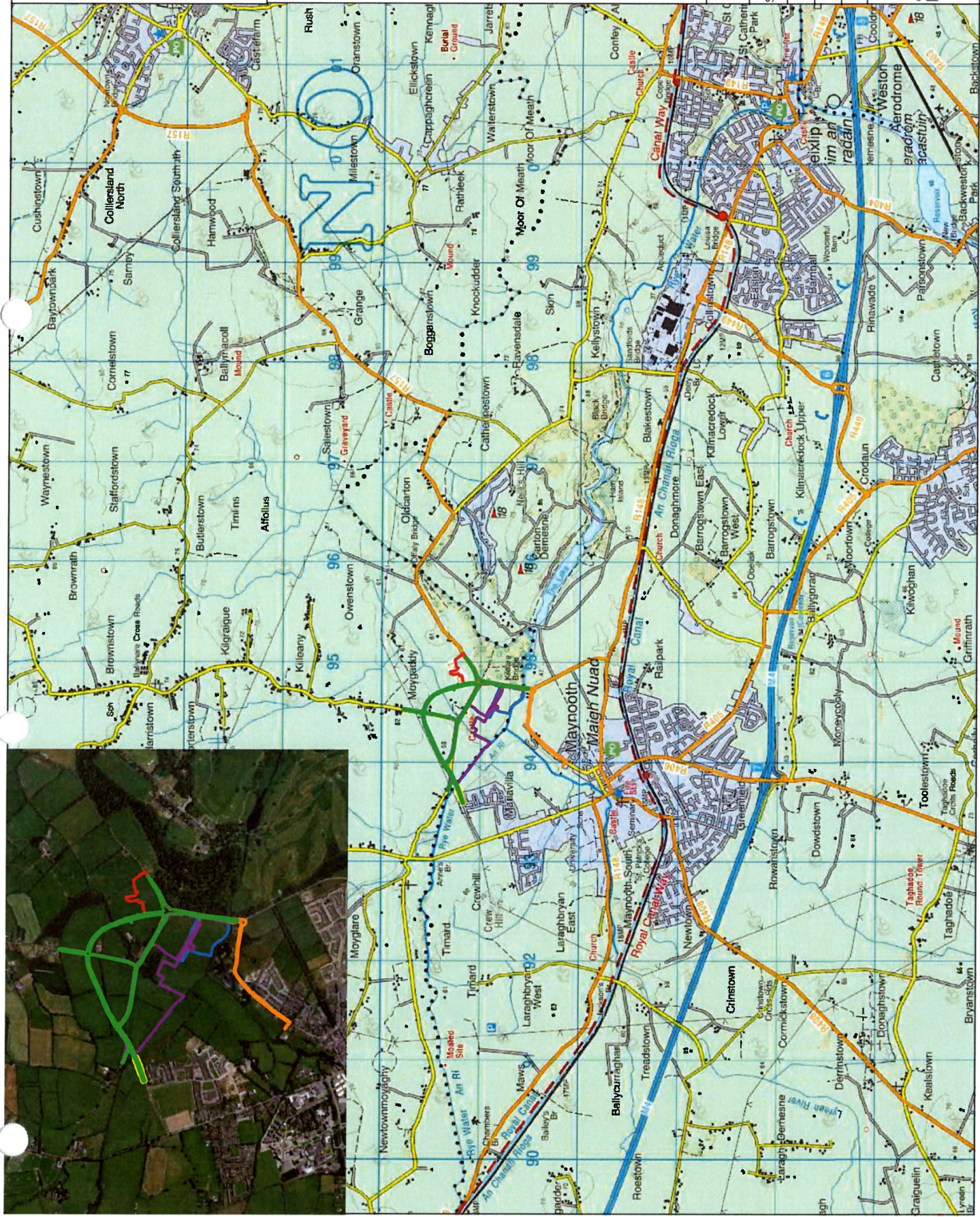


Drawing Title	
Six Planning Applications Site Boundaries	
Project Title	Sky Castle Ltd - Moygaddy Mixed Use Scheme, Co. Meath & Co. Kildare
Drawn By	Checked By
CM	CM
Project No.	Figure 2-2
210414	
Scale	Date
1:49,500	2022-08-30



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3. METHODS

3.1 Consultation

A scoping exercise was undertaken as part of the proposed development. A Scoping Document, providing details of the application site and the proposed development, was prepared by MKO and circulated to the Development Applications Unit in August 2021. As of 23rd August 2022, no response has yet been received.

3.2 Desktop Study

A desktop review of published material was undertaken to inform all subsequent field studies and assessments. The aim of the desktop review was to identify the presence of species of interest within the proposed site and surrounding region.

3.2.1 National Bat Database of Ireland

The National Bat Database of Ireland holds records of bat observations received and maintained by Bat Conservation Ireland. These records include results of national monitoring schemes, roost records as well as ad-hoc observations. The database was searched for bat presence and roost records within a 10km radius of the proposed development site.

In addition, information on species' range and distribution, available in the 2019 Article 17 Reports (NPWS, 2019), was reviewed in relation to the location of the Proposed Development. The NPWS monitors the conservation status of European protected habitats and species and reports their findings to the European Commission every 6 years in the form of an Article 17 Report. The most recent report for the Republic of Ireland was submitted in 2019.

3.2.2 Designated Sites

The National Parks and Wildlife Service (NPWS) map viewer and website provides information on rare and protected species, sites designated for nature conservation and their conservation objectives. A search was undertaken of sites designated for the conservation of bats within a 10 km radius of the Study Area (BCI 2012, Hundt, 2012, SNH 2019). This included European designated sites, i.e. SACs, and nationally designated sites, i.e. NHAs and pNHAs.

3.3 Ecological Appraisal (Bats)

Bat walkover surveys of the study area were carried out during daylight hours on the 8th July, 22nd July, 9th August 2021 and 18th August 2022. The landscape features on the site were visually assessed for potential use as bat roosting habitats and commuting/foraging habitats using a protocol set out in BCT *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn.) (Collins, 2016). Table 4.1 of the 2016 BCT Guidelines identifies a grading protocol for assessing structures, trees and commuting/foraging habitat for bats. The protocol is divided into four Suitability Categories: *High*, *Moderate*, *Low* and *Negligible*.

3.3.1 Roost Surveys

During the bat walkover surveys, a search for roosts was undertaken within the boundary of the proposed development. The aim was to determine the presence of roosting bats and the need for

further survey work or mitigation. During the walkover, mature trees, a castle tower and bridge within the proposed development site were assessed for their suitability to support bats.

This comprised a detailed inspection of the exteriors and interiors (if accessible) to look for evidence of bat use, including live and dead specimens, droppings, feeding remains, urine splashes and fur oil staining and noises (Collins, 2016).

The small castle tower and bridge (IG Ref: N 94448 39151 & N 94726 38561) were subject to a roost assessment. The exteriors of the structures were inspected first from ground level, with the aid of binoculars. The search included the ground, accessible windowsills, walls, and roofs. A systematic search of all accessible interiors was also undertaken by a licensed bat ecologist. Searches were carried out with the aid of torches and a ladder and focused on walls, floors, roofs, windowsills, lintels, etc. Results of the roost assessments are detailed in section 4.3 below.

Trees within the site were also assessed from ground level, with the aid of binoculars. Any potential tree roosts were examined for the presence of rot holes, hazard beams, cracks and splits, partially detached bark, knot holes, gaps between overlapping branches and any other potential roost features (i.e. PRFs) identified by Andrews (2018).

3.4 Emergence Survey

A dusk emergence survey was carried out on the evening of the 8th July 2021 on the small castle tower (Grid Ref: N 94448 39151). Two surveyors were equipped with active full spectrum bat detectors, Batlogger M (Elekon AG, Lucerne, Switzerland). Where possible, species identification was made in the field and any other relevant information was also noted, e.g. numbers, behaviour, features used, etc. All bat echolocation was recorded for subsequent analysis to confirm species identifications.

Conditions were suitable for bat surveys on all survey nights. The emergence surveys commenced 30 minutes before sunset and concluded 1 hour after sunset and were followed by walked transect surveys. The purpose was to identify any bat species, numbers, access points and roosting locations within the structure.

3.5 Dusk and Dawn Activity Surveys

Dusk and dawn activity surveys were carried out on 8th July, 22nd July and 9th August 2021. Two surveyors were equipped with active full spectrum bat detectors, a Batlogger M (Elekon, Lucerne, Switzerland) and walked a transect route within the site, focusing on potentially suitable habitat features for bats. Where possible, species identification was made in the field and any other relevant information was also noted, e.g. numbers, behaviour, features used, etc. All bat echolocation was recorded for subsequent analysis to confirm species identifications.

The dusk survey on 8th July 2021 commenced 30 minutes before sunset and was completed within 3 hours after sunset. Conditions were suitable for bat survey as per Collins (2016); dry, mild (18° C at sunset) with only light air (Beaufort Scale Force 1). The moon was not visible, and cloud cover was approximately 100% during the dusk survey.

The dawn survey on 22nd July 2021 commenced 2 hours before sunrise and was completed at sunrise. Conditions were suitable for bat survey as per Collins (2016); dry, mild (15° C at sunrise) with only light air (Beaufort Scale Force 1). Cloud cover was approximately 10% throughout the dawn survey.

The dusk survey on 9th August 2021 commenced 30 minutes before sunset and was completed within 3 hours after sunset. Conditions were suitable for bat survey as per Collins (2016); dry, mild (17° C at sunset), with only light air to light breeze (Beaufort Scale Force 1). Cloud cover was approximately 25% throughout the dusk survey.

July and August are within the optimum survey period for bat activity surveys, provided weather conditions are favourable (Collins, 2016). No limitations associated with seasonality, timing or weather conditions were identified.

Table 3-1 - Bat Activity Survey Effort 2021

Date	Surveyor	Type	Sunrise/Sunset	Weather
8 th July 2021	Tim Murphy and Neil Campbell	Dusk	21:52	18° C; Dry, Light air
22 nd July 2021	Tim Murphy and Neil Campbell	Dawn	05:27	15° C; Dry, Light air
9 th August 2021	Tim Murphy and Neil Campbell	Dusk	21:05	17° C; Dry, Light air

3.6

Static Detector Surveys

Full spectrum bat detectors, Song Meter SM4BAT (Wildlife Acoustics, Maynard, MA, USA), were deployed during static surveys to record bat activity at six fixed locations over 2-week periods in 2021. The six locations of static detectors were selected to represent the range of habitats present within the site, including favourable bat habitats as well as open spaces within the site. Settings used were those recommended by the manufacturer for bats, with minor adjustments in gain settings and band pass filters to reduce background noise when recording. Detectors were set to record from 30 minutes before sunset until 30 minutes after sunrise. The Song Meter automatically adjusts sunset and sunrise times using the Solar Calculation Method when provided with GPS coordinates.

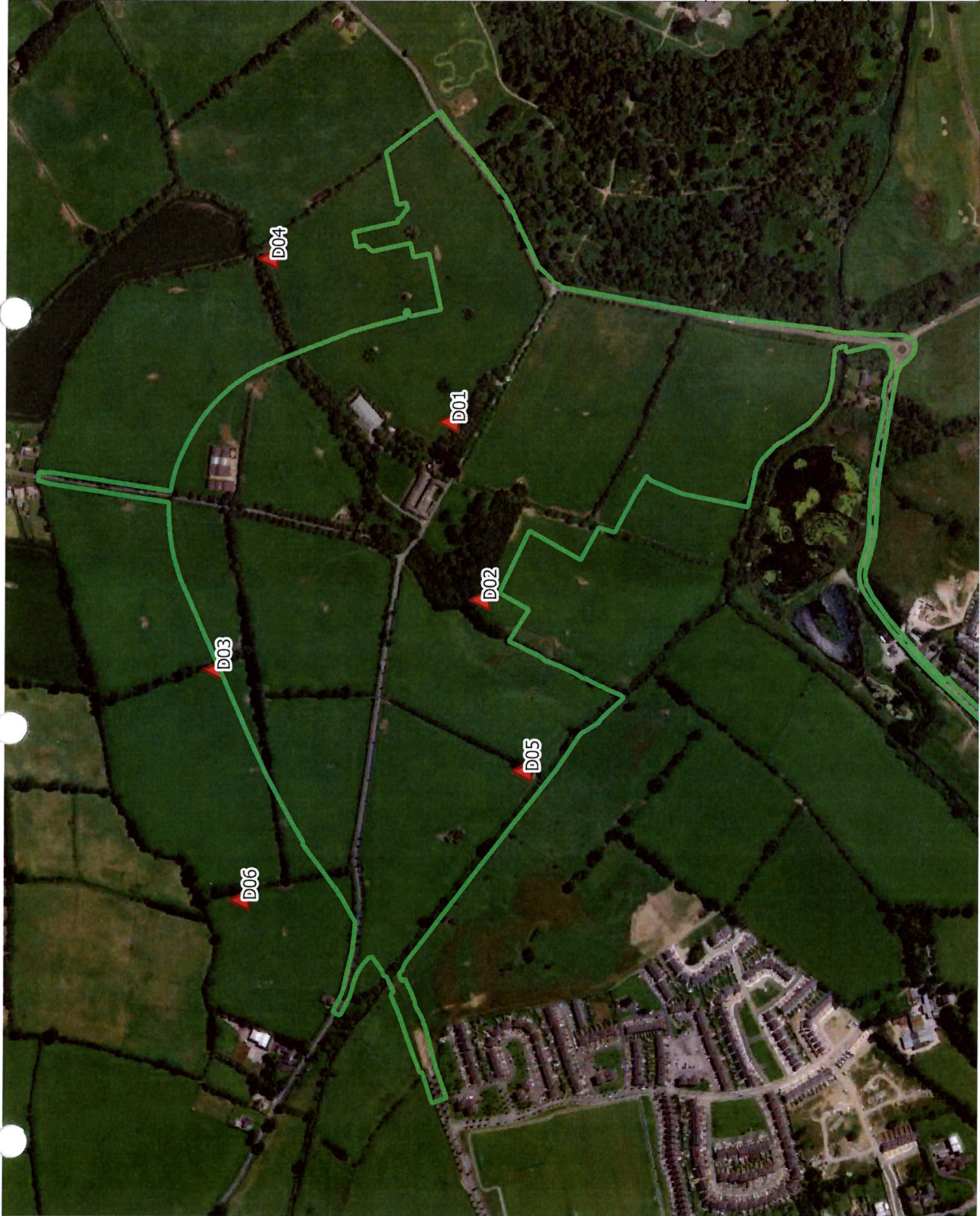
The survey was designed to utilise three static detectors to monitor bat activity. Two Song Meter SM4BAT detectors were deployed on site on 8th July 2021. The Song Meter SM4, dual-channel acoustic recorder is capable of the long-term acoustic monitoring of bats. After approximately two weeks, the static detectors were relocated to three separate new locations within the site. Static detector locations can be found in Figure 3-1. The static detectors were collected on the 9th August 2021.

C

C

C

C



Map Legend

-  EIAR Site Boundary
-  Detector Locations

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Drawing Title

Static Detector Locations

Project Title
Moygaddy Mixed Use Scheme, Co.
Meath & Co. Kildare

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Project No.
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3.6.1 Analysis of Static Detector Results

Echolocation signal characteristics (including signal shape, peak frequency of maximum energy, signal slope, pulse duration, start frequency, end frequency, pulse bandwidth, inter-pulse interval and power spectra) were compared to published signal characteristics for local bat species (Russ, 1999). Myotis species (potentially Daubenton's bat (*M. daubentonii*), Whiskered bat (*M. mystacinus*), Natterer's bat (*M. nattereri*) were considered as a single group, due to the difficulty in distinguishing them based on echolocation parameters alone (Russ, 1999). The echolocation of soprano pipistrelle (*P. pygmaeus*) and common pipistrelle (*P. pipistrellus*) are distinguished by having distinct (peak frequency of maximum energy in search flight) of ~55 kHz and ~46 kHz respectively (Jones & van Parijs, 1993).

Plate 3-1 below shows a typical sonogram of echolocation pulses for common pipistrelle recorded with a SM4BAT bio-acoustic static bat recording device. The recorded file is illustrated using Wildlife Acoustics Kaleidoscope software.

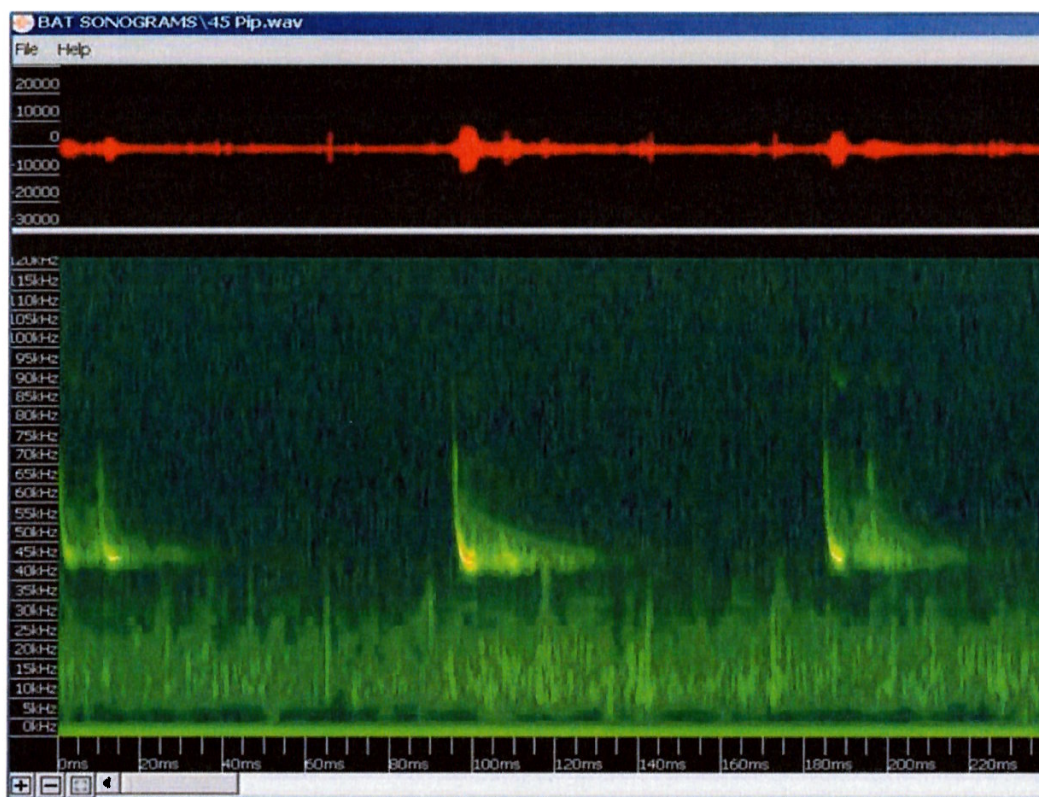


Plate 3-1 Sonogram of Echolocation Pulses of Common pipistrelle (Peak Frequency 45kHz)

Individual bats of the same species cannot be distinguished by their echolocation alone. Thus, 'bat passes' was used as a measure of activity (Collins, 2016). For the purposes of this survey, a bat pass was defined as a recording of an individual species/species group's echolocation containing at least two echolocation pulses and of maximum 15 seconds length.



3.7

Survey Limitations

Survey design and effort was created in accordance with the most current best practice guidelines for surveying bats (Collins, 2016).

The information provided in this report accurately and comprehensively describes the baseline environment. July and August are within the optimal survey period for bat activity surveys, (Collins, 2016). In addition, there were no limitations associated with weather conditions or access. Therefore, a full and comprehensive survey was achieved.

4.

RESULTS

4.1

Desktop Study

4.1.1

National Bat Database of Ireland

A review of the National Biodiversity Data Centre was made on the 26th November 2021, to obtain bat records from within 1km and 10km of the proposed development site.

Within the 1km square (N9439) there were no records of any bat species. Within the 10km hectad search (N93) there were records of seven bat species. Table 4-1 lists the bat species recorded within the hectad which pertains to the current study area (N93).

Table 4-1 NBDC Bat Records

Hectad	Species	Database	Status
N93	Daubenton's bat <i>Myotis daubentonii</i>	National Bat Database of Ireland	HD Annex IV, WA
N93	Common pipistrelle <i>Pipistrelle pipistrellus</i>	National Bat Database of Ireland	HD Annex IV, WA
N93	Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	National Bat Database of Ireland	HD Annex IV, WA
N93	Natterer's bat <i>Myotis nattereri</i>	National Bat Database of Ireland	HD Annex IV, WA
N93	Brown long-eared bat <i>Plecotus auritus</i>	National Bat Database of Ireland	HD Annex IV, WA
N93	Lesser Noctule <i>Nyctalus leisleri</i>	National Bat Database of Ireland	HD Annex IV, WA
N93	Whiskered Bat <i>Myotis mystacinus</i>	National Bat Database of Ireland	HD Annex IV, WA

4.1.2

Designated Sites

Within Ireland, the Lesser horseshoe bat is the only bat species requiring the designation of Special Areas of Conservation (SACs) and the proposed development site is situated outside the known range of this species. Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) may be designated for any bat species. A search of NHAs and pNHAs within a 10 km radius of the Study Area found no sites designated for the conservation of bats.

4.2

Bat Habitat Appraisal

A walkover survey was conducted on the 8th July, 22nd July and 9th August. Habitats within the site include **Improved Agricultural Grassland (GA1)**, **Stone Walls and Other Stonework (BL1)**, **Scrub (WS1)**, **Hedgerow (WL1)**, **Treeline (WL2)**, **Buildings and Artificial Surfaces (BL3)** **Eroding/Upland rivers (FW1)** and **(Mixed) broadleaf woodland (WD1)**.

With regard to foraging and commuting bats, the exposed areas of open grassland habitats were considered *Negligible-Low* suitability, i.e. habitat that could be used by small numbers of commuting or foraging bats (Collins, 2016). Mature hedgerows, treelines and scrub habitats show potential for foraging and commuting bats. These habitats connect the wider area via linear features such as the Blackhall Little Stream and Rye Water River. As such, these habitats were classified as *Moderate* suitability, i.e. Continuous habitat connected to the wider landscape that could be used by bats for commuting such as

lines of trees and scrub (Collins, 2016). Low stone walls, which form the field boundaries may be utilized by occasional commuting and foraging bats and were classified as having *Low* suitability for commuting and foraging bats.

With regard to roosting bats, mature trees were assessed for their suitability to support roosting bats. A number of individual trees throughout the proposed development site were assessed as have *Low-Moderate* roosting potential. This included two individual mature ash (*Fraxinus excelsior*) trees located on the eastern boundary of site A, two individual mature ash trees located on the eastern boundary of site B, One mature Ash and one mature Sycamore (*Acer pseudoplatanus*) at the eastern section of site C and one mature ash at the northern boundary of the MOOR along the Blackwater little stream.

A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (Collins, 2016). All other hedgerows and treelines which are being retained were assessed as having *Negligible* roosting potential due to their size and lack of PRFs.

The castle tower was assessed as having *High* roosting potential i.e. a structure with one or more potential roost sites that are obviously suitable for use by larger number of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat (Collins, 2016) due to the presence of a number of PRF's visible during the roost inspection. The bridge did not provide any significant suitable roosting features and was classified as "*Negligible*" to "*Low*" Suitability for roosting bats.

All other habitats present were assigned a *Negligible* value. Further details on structures within the site, can be found in section 4.3 below.



Plate 4-1 WL1 present in the northern section of the site



Plate 4-2 WL2 in the background & GA1 in the foreground

4.3 Roost Surveys

4.3.1 Castle Tower

A dedicated exterior roost inspection survey was undertaken during daylight hours on 8th of July 2021 (Plate 4-3 – 4-5). The tower castle is two stories and approximately 30 feet tall. The tower consists of stone walls and a partially collapsed stone roof. The interior of the structure was accessible through the main door at the ground level and the multiple windows on the first floor. The PRF's consisted of ivy cover over outer walls and a large number of crevices in the stonework. Gaps with potential for roosting bats were present between the stonework. The ivy cover was extensive along the south facing wall. Due to the number of PRF's, the tower was identified as having "*High suitability*" potential for roosting bats, i.e. a structure with one or more potential roost sites that are obviously suitable for use by larger number of bats on a more regular basis and potentially for longer periods of time due to their size,

shelter, protection, conditions and surrounding habitat (Collins, 2016). No evidence of bat use, including droppings, fur oil staining, signs of feeding remain etc., were identified within or surrounding the building. No bats were observed exiting or entering the building during the dusk activity survey.



Plate 4-3 South facing wall of the castle tower with dense ivy cover



Plate 4-4 East facing wall of the castle tower with potential access through door and window



Plate 4-5 North facing wall of castle tower with potential access through windows

4.3.2 Kildare Bridge

A dedicated exterior roost inspection survey was undertaken on Kildare bridge (Grid Ref: N 94726 38561) during daylight hours on 18th of August 2022 (Plate 4-6 – 4-7). The bridge did not provide any significant suitable roosting features and no evidence of bats or bat use was found during the inspection. As such, it was classified as “Negligible” to “Low” Suitability for roosting bats.



Plate 4-6 Exterior bridge view



Plate 4-7 Interior bridge view

The results of the bat surveys, carried out in 2021 indicate that the proposed development site does provide suitable habitat for a roosting bat population of ecological significance; however, no roosts were identified on site.

4.4

Emergence Survey

An emergence survey was carried out on 8th July 2021 by two surveyors to assess the castle tower structure. During the emergence survey, no bats were observed exiting or entering the structure. However, bats were observed commuting and foraging between the trees and commuting to surrounding areas. It is noted that there are structures located to the north of the castle tower, not forming part of the application, which may also provide potential habitat for roosting bats.

4.5

Dusk and Dawn Activity Surveys

Numerous foraging and commuting bats were recorded during the dusk and dawn bat activity surveys. Overall, bat activity was low with a total of 521 bat passes recorded across all surveys. Activity was dominated by common pipistrelle (*Pipistrellus pipistrellus*) n=293. This was followed by Leisler's bat (*Nyctalus leisleri*) n=159 and soprano pipistrelle (*Pipistrellus pygmaeus*) n=67. In addition, very small numbers of brown long-eared bat (*Plecotus auritus*) n=2 were also recorded. Activity levels were concentrated along the treeline edge habitats and field boundary hedgerows bordering the Study Area (Figure 4-1 – 4-3). Plate 4-8 shows total bat species composition and Table 4-2 presents the results per survey. Plate 4-9 shows total bat passes per night.

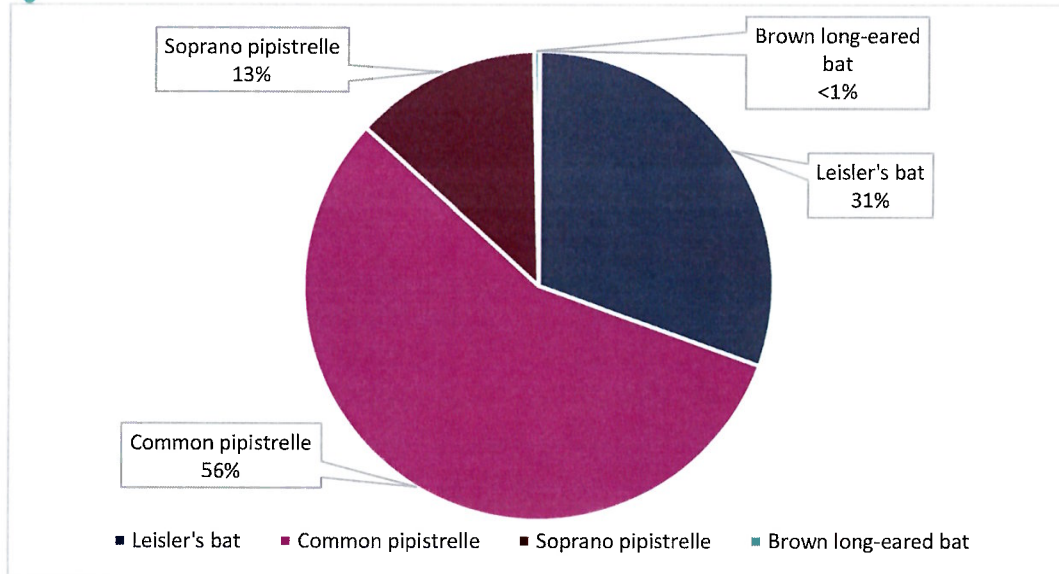


Plate 4-8 Species Composition – Dusk and Dawn surveys

Table 4-2 - Manual Transect Bat Pass Results Per Survey

Species	Dusk 8 th July 2021	Dawn 22 nd July 2021	Dusk 9 th August 2021	Total
Brown long-eared bat	-	-	2	2
Leisler's bat	150	6	3	159
Common pipistrelle	124	47	122	293
Soprano pipistrelle	46	3	18	67
Grand Total	320	56	145	521

There was an accumulation of bat activity around the small castle tower and surrounding WD1 habitat to the eastern section of Site C (Figure 4-1). The concentration of activity can be attributed to the surveyors being positioned here for 1.5 hours during the emergence survey on the small castle tower. Bats were recorded commuting between the structure and foraging along woodland, hedgerow and treeline boundaries. However, no bats were observed emerging or re-entering the structure. This was followed by walked transects for the remainder of the surveys.

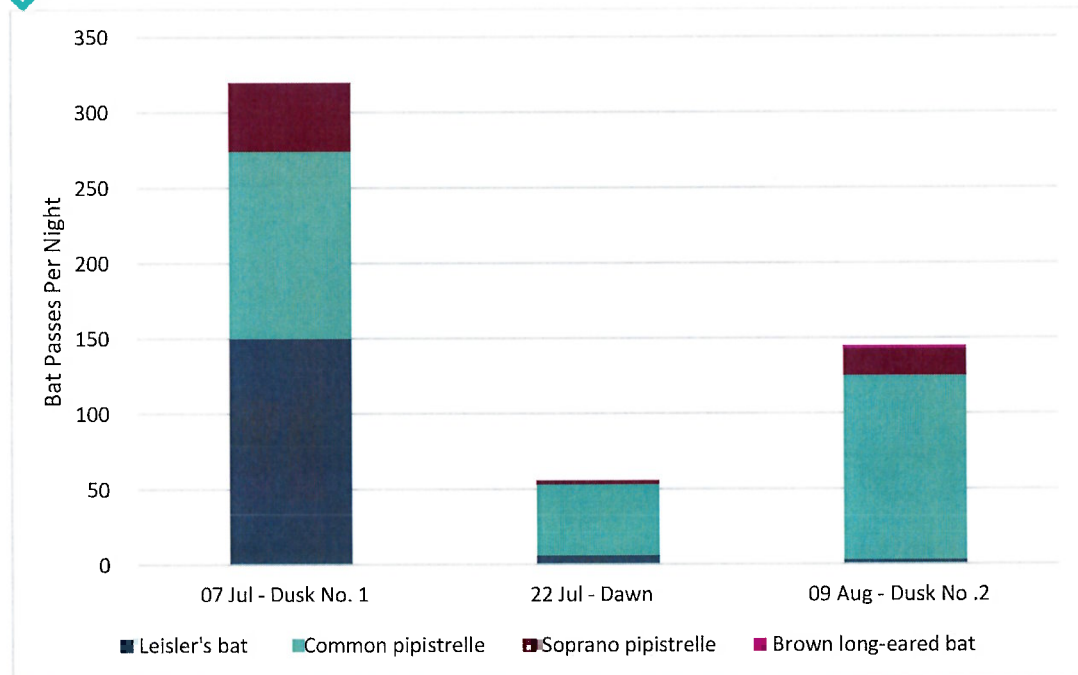


Plate 4-9 Species Composition Per Survey



Map Legend

- EIAR Site Boundary
- Transect Route
- Species
 - Leisler's bat
 - Common pipistrelle
 - Soprano pipistrelle

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Drawing Title	
Manual Transect Results - 7th July 2021	
Project Title	
Moygaddy Mixed Use Scheme, Co. Meath & Co. Kildare	
Drawn By	TM
Checked By	AJ
Project No.	210414
Drawing No.	Fig 4-1
Scale	1:6500
Date	23.08.2022

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Map Legend

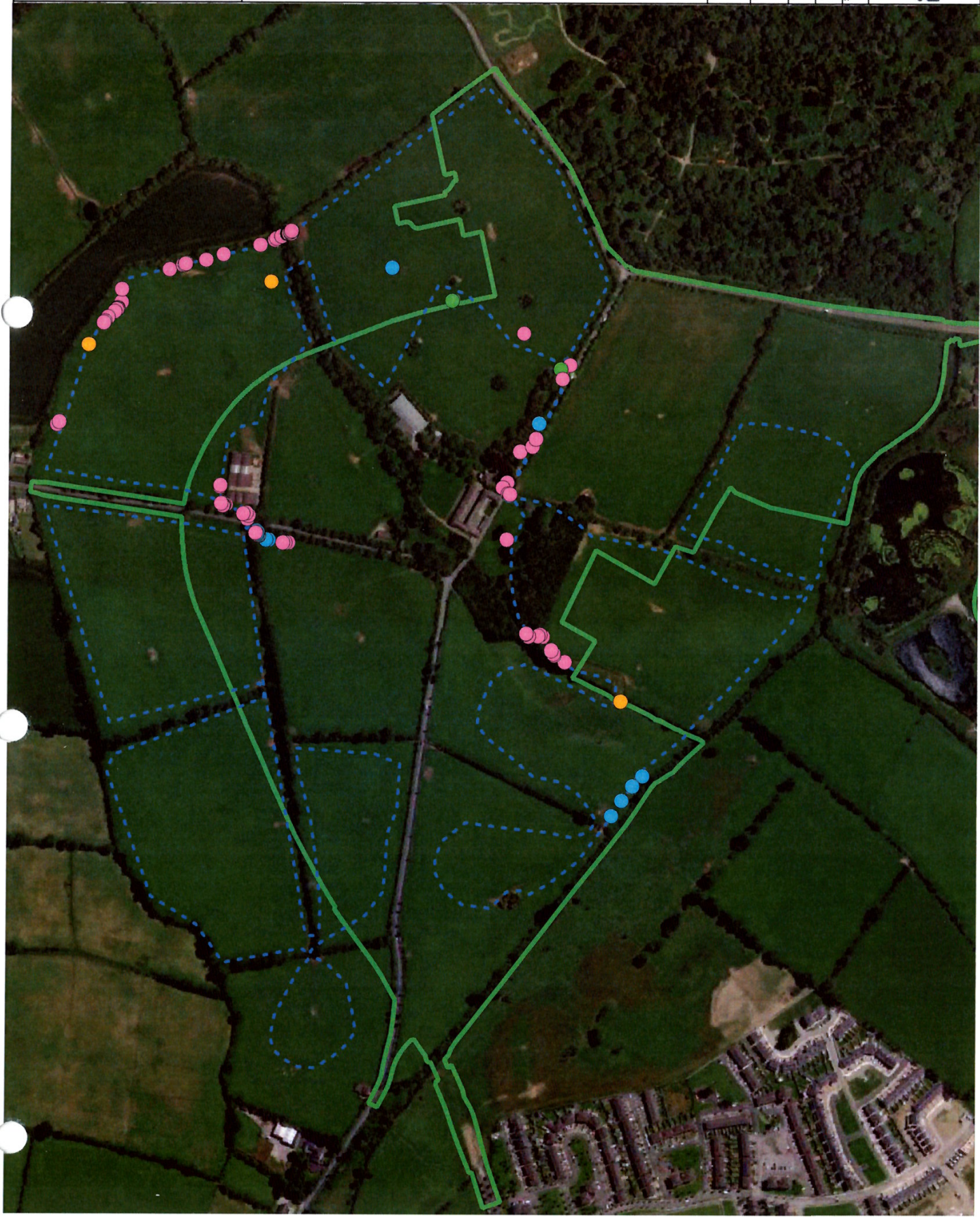
- EIAR Site Boundary
- Transect Route
- Species
 - Lesser's bat
 - Common pipistrelle
 - Soprano pipistrelle

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Drawing Title	
Manual Transect Results - 22nd July 2021	
Project Title	
Moygaddy Mixed Use Scheme, Co. Meath & Co. Kildare	
Drawn By	TM
Checked By	AJ
Project No	210414
Drawing No	Fig 4-2
Scale	1:6500
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Map Legend

- EIAR Site Boundary
- Transect Route

Species

- Leisler's bat
- Common pipistrelle
- Soprano pipistrelle
- Brown long-eared bat

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Drawing Title		Manual Transect Results - August 9th 2021	
Project Title		Moygaddy Mixed Use Scheme, Co. Meath & Co. Kildare	
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Static Detector Survey Results

Three static detectors were deployed on the site at six different locations (Figure 3-1), based on likely areas of bat activity, for a total of 33 nights in July/August 2021. These detectors allowed a specified look into species composition, commuting and foraging activities within the site.

All recordings were later analysed using bat call analysis software Kaleidoscope Pro v.5.4.2 (Wildlife Acoustics, MA, USA). Bat species were identified using established call parameters, to create site-specific custom classifiers. All identified calls were also manually verified. In total, 20,160 bat passes were recorded.

Analysis of the detector recordings positively identified five bats to species level with *Myotis* genus also present. Bat species included: common pipistrelle (*Pipistrellus pipistrellus*) n=10,061, Leisler's bat (*Nyctalus leisleri*) n=6,062 and soprano pipistrelle (*Pipistrellus pygmaeus*) n=3,596. *Myotis* spp. n=276, brown long-eared bat (*Plecotus auritus*) n=97 and nathusius' pipistrelle (*Pipistrellus nathusii*) were rarely encountered, with 1% or less compared to the total bats recorded (Plate 4-10).

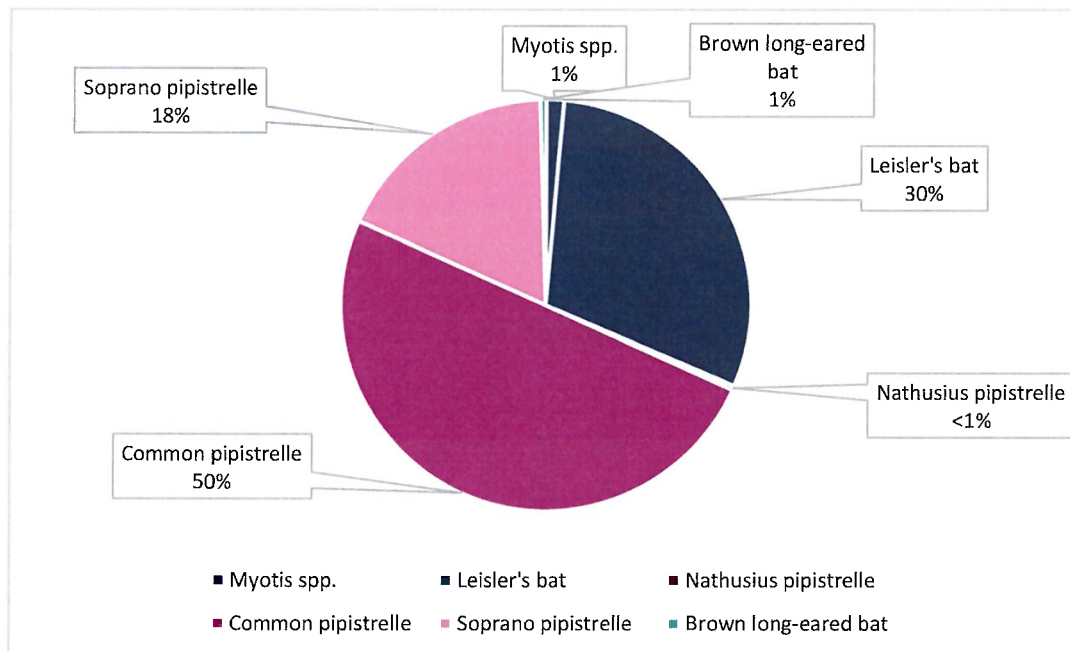


Plate 4-10 - Species Composition

Plate 4-11 shows total bat passes per detector. Detectors D01, D02 and D03 are associated with the first two-week deployment from 8th July to 22nd July 2021. Detector D01 was located to the northeast of Site C along a birch treeline habitat next to and open grassland. Detector D02 was located to the southeast of Site C along a treeline edge habitat, adjacent to the stream running north to south through the Study Area. Detector D03 was located along the hedgerow in the northwest of the Maynooth Outer Orbital Road (MOOR) Site. This area has a strong linear feature, that could provide suitable commuting and foraging opportunities for bats.

Detectors D04, D05 and D06 are associated with the second two-week deployment from 22nd July to 9th August 2021. Detector D04 was located north of Site A and east of the MOOR Site where two hedgerows converge. This area had high quality linear features suitable for foraging and commuting bats. Detector D05 was located along a hedgerow next to the Rye Water River along the southern boundary of Site C. Detector D06 was located to the northwest of Site C and the MOOR Site. Figure 3-1 shows all static detector locations.

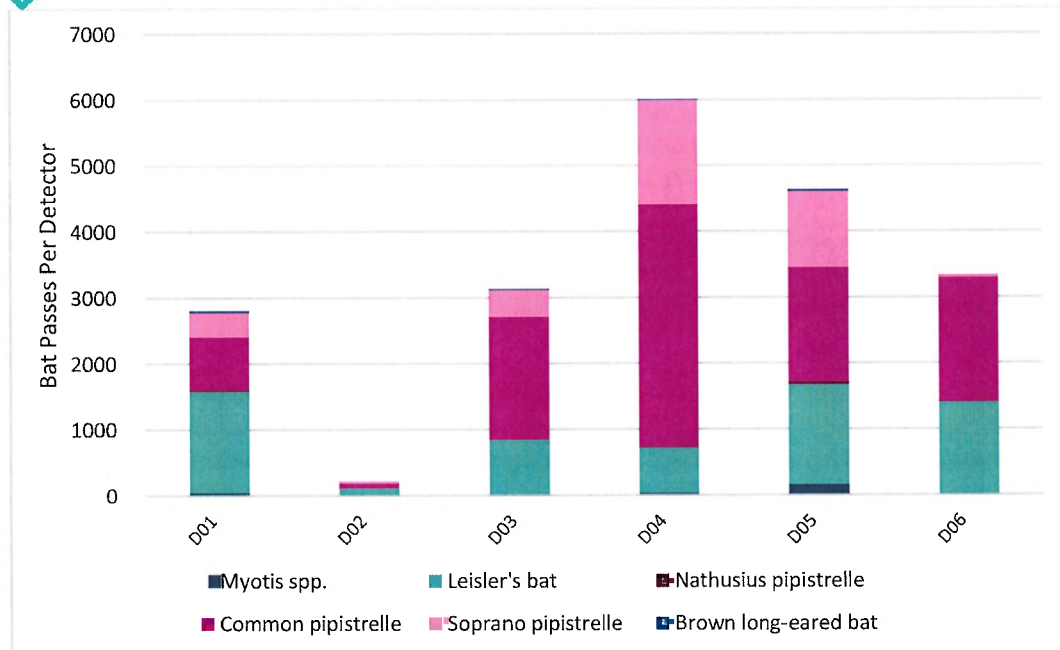
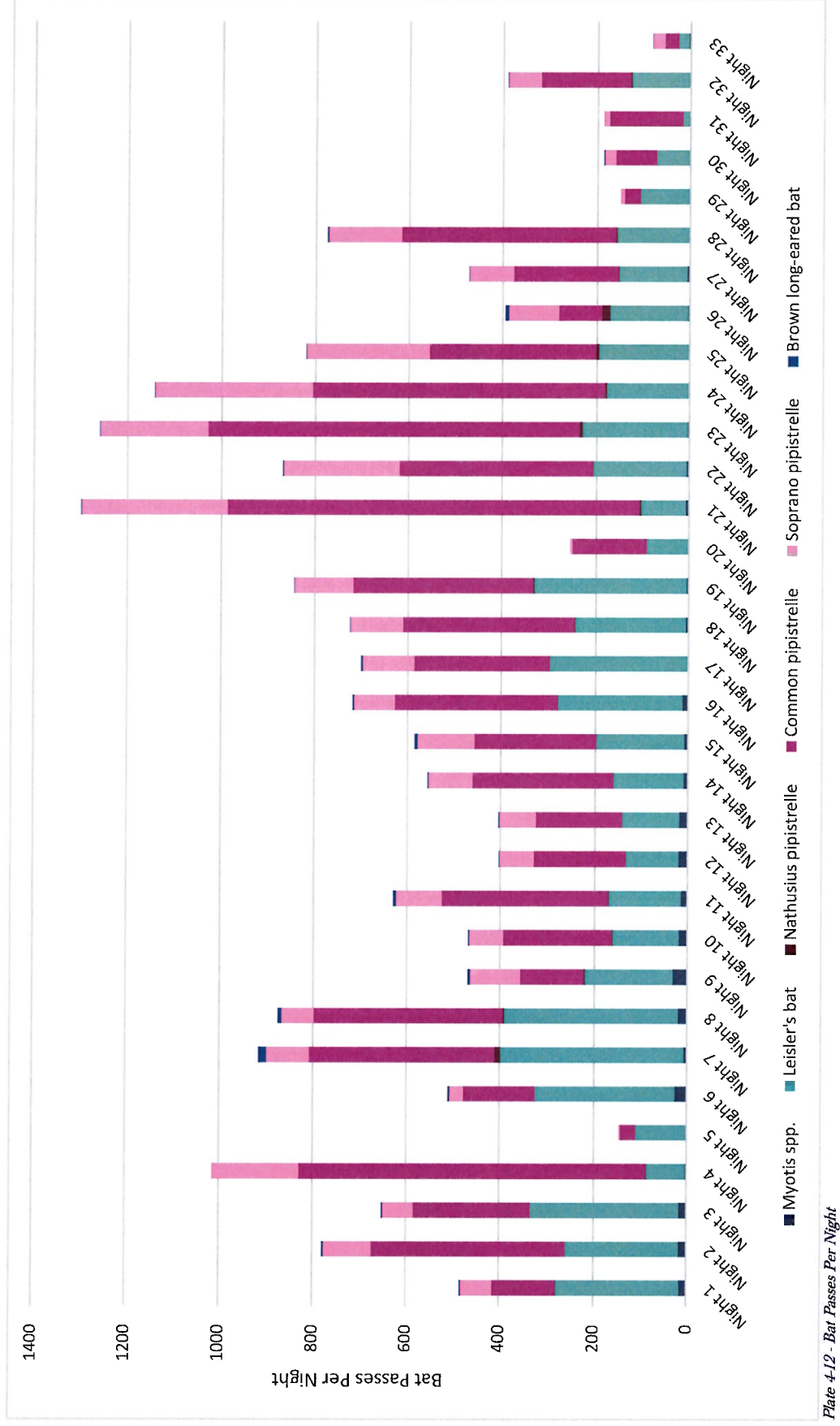


Plate 4-11 - Bat Passes Per Detector

Analysis of the detector recordings also highlighted the total bat passes per night. Species composition per night is shown in Plate 4-12. Nights from 1 to 16 are associated with the first deployment locations (D1, D2 and D3). Nights from 17 to 33 include bat passes from the second deployment locations D4, D5 and D6. Activity varied across each deployment and each night. The graph demonstrates that common pipistrelle, Leisler's bat and soprano pipistrelle species were most commonly recorded during the survey periods. These species are common and widespread across Ireland.



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Importance of Bat Population Recorded at the Site

Ecological evaluation within this section follows a methodology that is set out in Chapter three of the ‘*Guidelines for Assessment of Ecological Impacts of National Roads Schemes*’ (NRA, 2009).

All bat species in Ireland are protected under the Bonn Convention (1992), Bern Convention (1982) and the EU Habitats Directive (92/43/EEC). Additionally, in Ireland bat species are afforded further protection under the Birds and Natural Habitats Regulations (2011) and the Wildlife Acts 1976-2021.

Bats as an Ecological Receptor have been assigned *Local Importance (Higher value)* on the basis that the habitats within the proposed development site are utilized by a regularly occurring bat population of *Local Importance*.

No roosting bats or evidence of bat use was identified within the structures or trees within the site. The results of the bat surveys, carried out in 2021 indicate that the proposed development site does provide suitable habitat for a roosting bat population of ecological significance. However, no roosting site of *National Importance* (i.e. site greater than 100 individuals) was recorded within the site.

5. OVERALL FINDINGS

The daytime roost inspections identified the Kildare bridge and castle tower as having “Negligible” to “Low” and “*High*” roosting potential, respectively, due to the presence/lack of presence of PRFs. No evidence of roosting bats was identified within any of the structures during the daytime roost inspections. Mature trees within the site may provide potential suitable roosting habitat for bats, although no roosts were identified during the surveys.

Following the daytime inspections, a dedicated emergence survey was carried out on the tower castle. No bats were observed emerging from the structure; however, bats were observed commuting and foraging along linear habitat features within the proposed development site. The site does not support any maternity roosts or a roost of National Importance.

Bat activity levels were mainly associated with woodland edge, treeline and hedgerow habitats within the proposed development site. Species composition was comprised predominantly of common pipistrelle, Leisler’s bat and soprano pipistrelle, all of which are common and widespread across Ireland.

Impact Assessment and proposed mitigation measures are outlined in Section 6.7 of Chapter 6.

6.

CONCLUSION

In total, six bat species were recorded across the proposed development site. No roosting bats were identified within the site. Foraging and commuting was mainly associated with woodland edge, mature treeline and hedgerows habitats forming field boundaries.

The surveys methodology and results provided in this report are in accordance with the relevant industry guidance. The information provided in this report accurately and comprehensively describes the baseline environment. July and August are within the optimal survey period for bat activity surveys. In addition, there were no limitations associated with weather conditions or access. Therefore, a full and comprehensive survey was achieved.

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APPENDIX 8-1

FLOOD RISK ASSESSMENT

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Moygaddy Masterplan Flood Risk Assessment

Technical Report

August 22

2021s1492

Sky Castle Ltd.

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Revision History

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A3-C01 / 19th August 2022	Final Issue	Sky Castle Ltd.
A3-C02 / 25th August 2022	Minor Changes	Sky Castle Ltd.

Contract

This report describes work commissioned by Ronan Barrett, on behalf of Sky Castle Ltd, by a letter dated 10 September 2021. Sky Castle Ltd's representative for the contract was Anthony Horan, on behalf of O'Connor Sutton Cronin and Associates (OCSC). Paul Browne, Anastasiya Ilyasova, David Casey and Ross Bryant of JBA Consulting carried out this work.

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Purpose

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Abbreviations

1D	One-Dimensional (modelling)
2D	Two-Dimensional (modelling)
AEP	Annual Exceedance Probability
AFA	Area for Further Assessment
CFRAM	Catchment Flood Risk Assessment and Management
DEHLG	Department of the Environment, Heritage and Local Government
FFL	Finished Floor Level
FRA	Flood Risk Assessment
FSU	Flood Study Updates
GSDSDS	Greater Dublin Strategic Drainage Strategy
GSI	Geological Survey Ireland
MCC	Meath County Council
MCDP	Meath County Development Plan
MRFS	Mid-Range Future Scenario
NCFHM	National Coastal Flood Hazard Mapping
NIFM	National Indicative Fluvial Mapping
OD	Ordnance Datum
OPW	Office of Public Works
PFRA	Preliminary Flood Risk Assessment
RPS	Record of Protected Structure
SFRA	Strategic Flood Risk Assessment

1 Executive Summary

The Site Specific Flood Risk Assessment (SFRA) has been prepared for the entire land bank of c. 240 acres at Maynooth Environs Moygaddy which forms the Masterplan area owned by Sky Castle Ltd. The development is located in the townland of Moygaddy, Co Meath although some of the road/bridge infrastructure will be located in Co Kildare.

Individual planning applications are to be submitted for

- An office campus
- A Primary Care Centre & Nursing Home
- The Maynooth Outer Orbital Route (MOOR)
- A Strategic Housing Development of 360no Homes, creche, Scout Den, Public Park and Playground,
- Utility connections & road, pedestrian and cycle connections with Maynooth, County Kildare

A review of the available flood maps confirms that both the Ryewater River and the Blackhole Little Stream overtop during the 1% AEP and 0.1% AEP flood events, which results in limited inundation to the Masterplan site. To confirm the flood extents for the Masterplan site a hydraulic model has been developed for the study area.

Based on the findings of the SFRA and hydraulic model, all development proposed is located within Flood Zone C i.e. at a low risk of flooding. Some of the road bridge, pedestrian & cycle and utility connection infrastructure where they cross the Rye Water & Blackhole Little stream, which by their nature, are within Flood Zones A & B.

The new bridge infrastructure has been designed to ensure they have no impact on flooding and therefore, there will be no increase in flood risk resulting from the development. If planning permission is granted, a Section 50 application will be submitted to the OPW for all the proposed bridge structures.

Climate change and residual risks (blockage) have also been assessed for the Masterplan site. The results confirm the development will not be impacted by the predicted impact of climate change nor by the modelled blockage events.

In summary, the FRA was undertaken in accordance with 'The Planning System and Flood Risk Management - Guidelines for Planning Authorities' (2009), and agrees with the core principles contained within

2 Introduction

2.1 Terms of Reference and Scope

JBA Consulting was appointed by Sky Castle Ltd to prepare a comprehensive Site-Specific Flood Risk Assessment (SSFRA) study for the proposed masterplan development of a site located in Moygaddy, Co. Meath. The development of the site will involve the construction of utility road bridge infrastructure connections that will be undertaken in Maynooth, Co. Kildare. The masterplan within Moygaddy has been identified in the Meath County Development Plan 2021-2027 (Masterplan Reference: MP 16).

Under the 'Planning System and Flood Risk Management - Guidelines for Planning Authorities' (DEHLG / OPW, 2009), proposed development must undergo a Flood Risk Assessment (FRA) prior to planning to ensure sustainability and effective management of flood risk. The planning authorities in this instance are Meath County Council (MCC) and Kildare County Council (KCC).

2.2 Flood Risk Assessment: Aim and Objectives

This study is being completed to inform the future design and development of the site as it relates to flood risk. It aims to identify, quantify and communicate to the client the risk of flooding to land, property and people and the measures that would be recommended to manage the risk in order to facilitate the development of the site.

The objects of this FRA are to:

- Identify potential sources of flood risk;
- Confirm the level of flood risk, and identify key hydraulic features;
- Assess the impact the proposed development has on flood risk;
- Develop appropriate flood risk mitigation and management measures, which will allow for the long-term development of the site.

Recommendations for development have been provided in the context of the 'Planning System and Flood Risk Management - Guidelines for Planning Authorities' by the DEHLG / OPW (2009). A review of the likely effects of climate change, and the long-term impacts this may have on development has also been undertaken.

For general information on flooding, the definition of flood risk, flood zones and other terms, refer to 'Understanding Flood Risk' in Appendix A.

2.3 Development Proposal

It is proposed to construct the following developments:

- a residential estate on a c.13.52ha site, as part of a c.96ha masterplan development (MP 16), located in Moygaddy, Co. Meath.
- Maynooth Outer Orbital Road (MOOR)
- 2 road bridges
- 3 pedestrian and cycle bridges

The c.96-hectare Moygaddy masterplan site area is to be subject to a phased development over a 25+ year period, with the initial phasing comprising:

- Maynooth Outer Orbital Road;
- 360nr. residential development, creche and public park (SHD ABP-312213-21)
- Phase 1 Medical i.e., Primary Care Centre and Nursing Home
- Phase 1 Biomedical, Lifesciences and Technology Park i.e., 3nr. Office Blocks

The overall masterplan development provides for a total of 5no bridges across the Ryewater River and Blackhall Little Stream. This consists of 2no. road bridges and 3no pedestrian walkway/cycleway bridges.

The SHD application will be submitted to An Bord Pleanála and each of the other applications are to be submitted to Meath County Council for planning permission under independent applications, with further applications for the remaining masterplan area to be submitted on a phased basis, until all development within Masterplan area is completed. Planning applications will also be submitted to Kildare County Council for the road, bridge, pedestrian/cycle path and utility connection infrastructure within County Kildare.

The masterplan area is aligned with the River Ryewater along its southern boundary, and is also bisected (North – South) by the Blackhall Little Stream, near its centre. All development that is to occur on site is to provide significant sustainable drainage infrastructure that is to be integrated with the intensive landscaping, and comply with Meath County Council's County Development Plan and SuDS policies. All rainfall runoff is to be treated and attenuated on site, with development discharge rates restricted to a flow rate that is less than the greenfield equivalent runoff rate (5.61 l/s/ha). The proposed bridge designs are provided in Appendix B.

Refer to Figure 2-1 or the site location masterplan.

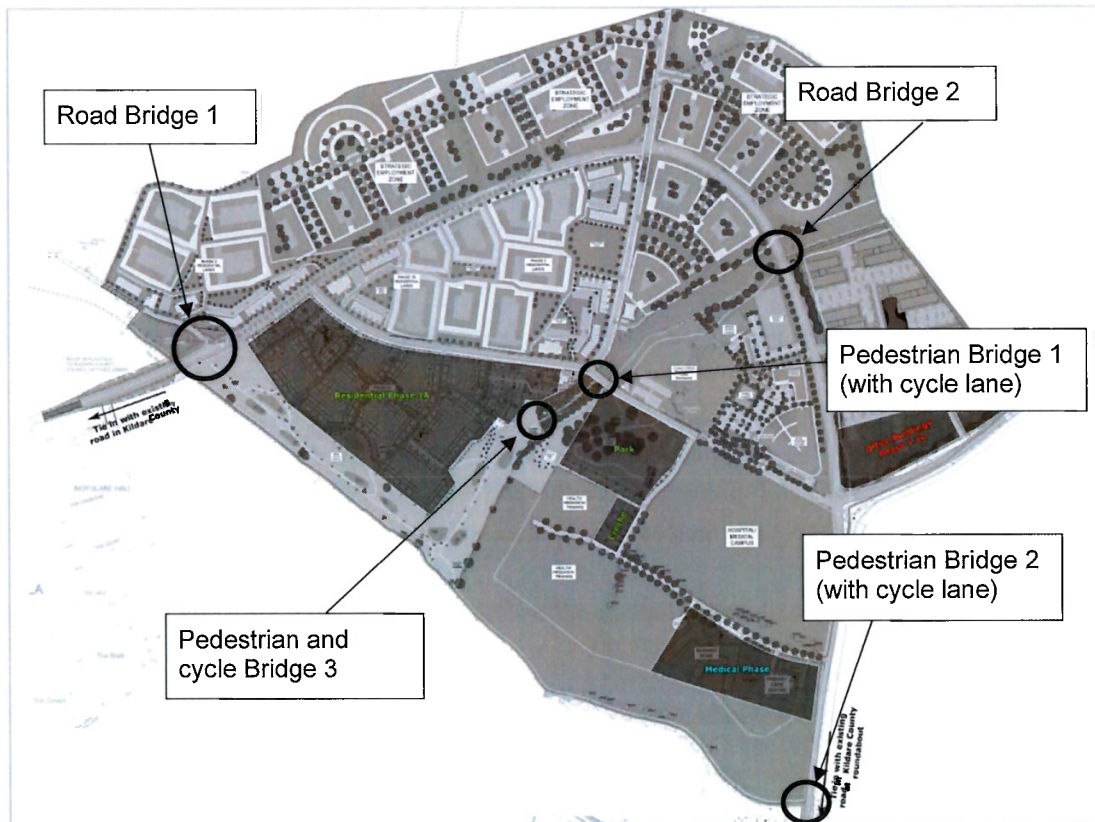


Figure 2-1: Site Location Masterplan (Source: OCSC)

2.4 Report Structure

Section 3 of this report gives an overview of the study location and associated watercourses. Section 4 contains background information and initial assessment of flood risk. The hydraulic model and hydrology are outlined in Section 5. Mitigation measures are outlined in Section 6, while conclusions are provided in Section 7.

3 Site Background

This section describes the watercourses and hydraulic features, topography, geology and wider geographical areas of Moygaddy, Co. Meath and Maynooth, Co. Kildare.

3.1 Location

The proposed site is mainly located in Moygaddy, Co. Meath, but works will also extend across the Ryewater River as part of the bridge/ road construction and to facilitate connections to utility infrastructure. The lands are primarily agricultural greenfields however there are some residential dwellings and farm buildings within the site boundary. A number of local access roads cross the site.

Maynooth town is located to the south of the site across the Ryewater River.

Refer to Figure 3-1 for the existing site overview.

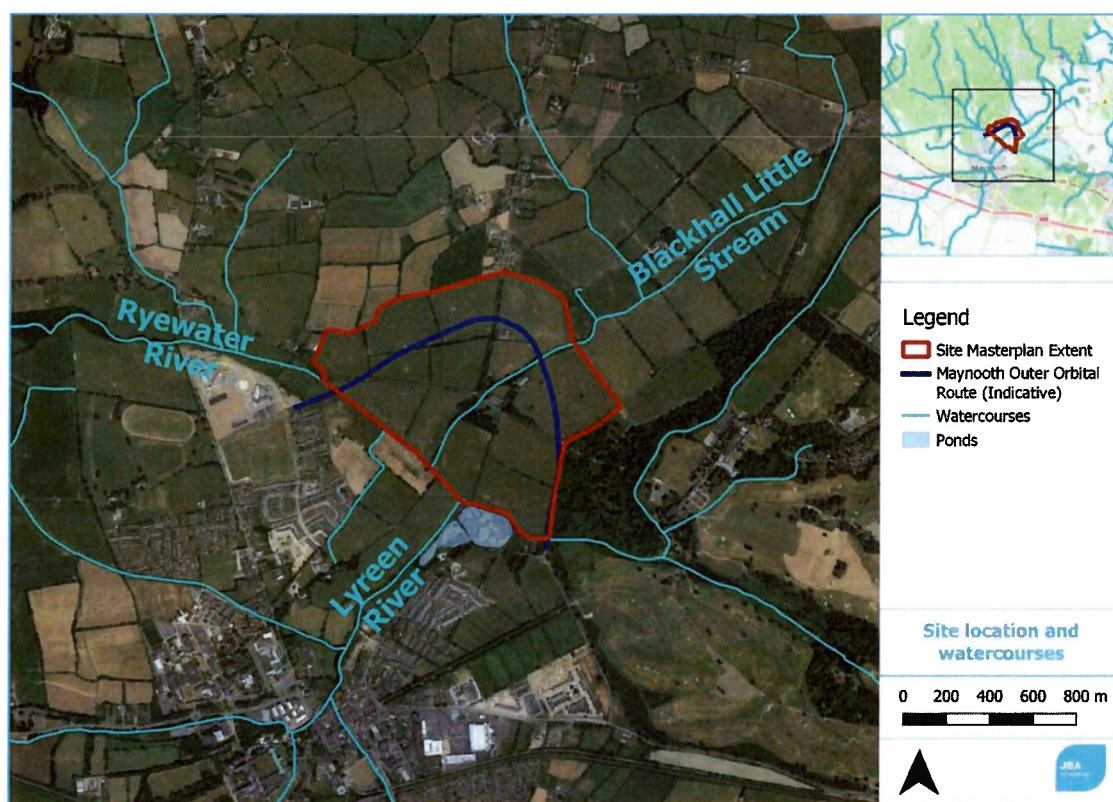


Figure 3-1: Site Location and watercourses

3.2 Site Topography

The masterplan site covers some 96Ha. It consists mainly of open fields. Public topographical data was available for review from the Geological Survey Ireland (GSI), courtesy of the OPW. Digital Terrain Model LiDAR data has been reviewed, which is topographical data that does not include buildings. As expected, the site falls naturally towards the Ryewater and Blackhole Little Stream. These 2 watercourses serve to naturally drain these lands. There is a high point located to the north with an elevation of c.62.66mOD. There is a low point at the southeast corner, located in the Ryewater river channel, with an elevation of c.44.40mOD. Refer to Figure 3-2 for the local topography.

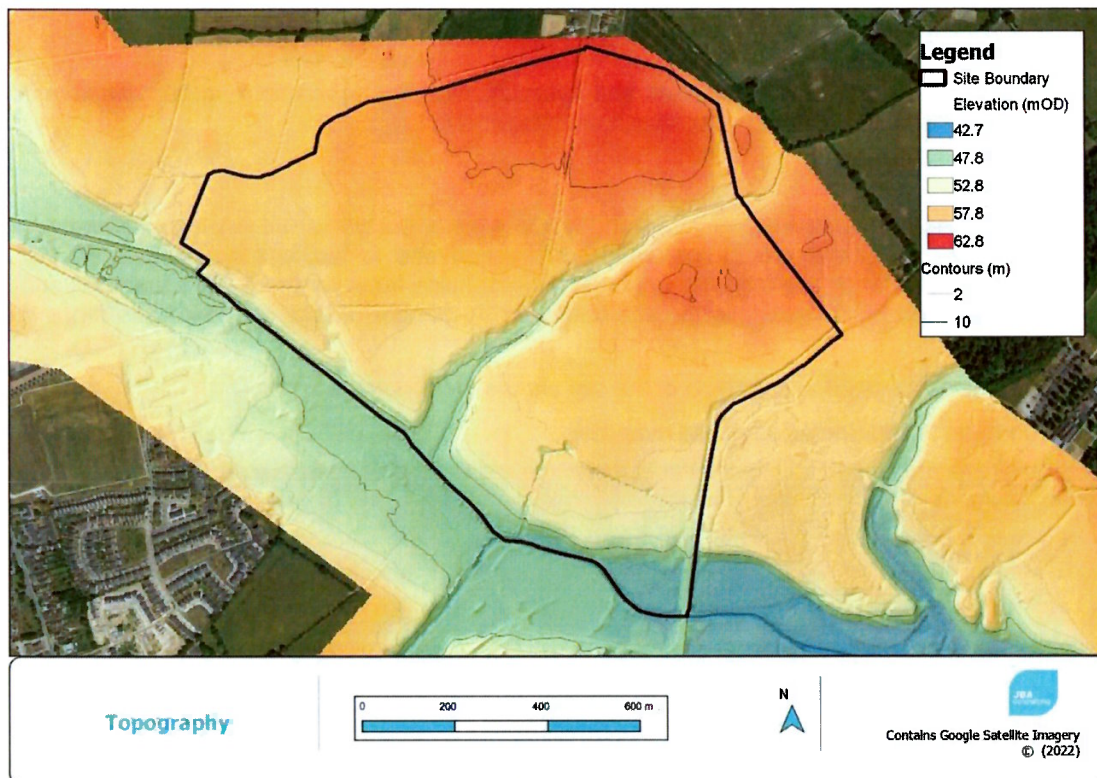


Figure 3-2: Site Topography (Source: site survey)

3.3 Watercourses

There are several watercourses in the area, and these are summarised as follows:

The main local watercourse is the Ryewater, also known as the River Rye. The Ryewater rises in Agher, Co. Meath. It flows through Kilcock, Maynooth and Leixlip before discharging to the River Liffey. The main tributaries of the Ryewater near Maynooth are summarised (amongst others) as follows:

To the north of the Ryewater, the Blackhole Little Stream runs through the site in a NE-NW direction. This stream rises near Cullendragh, Co. Meath and flows for c.10.3km before discharging to the Ryewater.

To the south, the Lyreen River merges with the Ryewater River along the southern boundary of the site. It flows through Maynooth town centre. It is c.12.2km in length and rises near Rathcoffey, Co. Kildare.

Refer to Figure 3-1 for an overview of local watercourses.

3.4 Site Geology

3.4.1 Local Subsoils

The GSI geological maps were available for review. The local subsoils are presented in Figure 3-3. The quaternary sediments present on site are TLs - Limestone till Carboniferous; while Alluvium undifferentiated gravelly is located along the waterbody systems. A thin line of Bedrock outcrop along the left bank of the Blackhole Little Stream at site. The underlying bedrock on-site is identified as 'Lucan Formation' and described as "dark limestone and shale (calp)". There were no karstic features identified on-site.

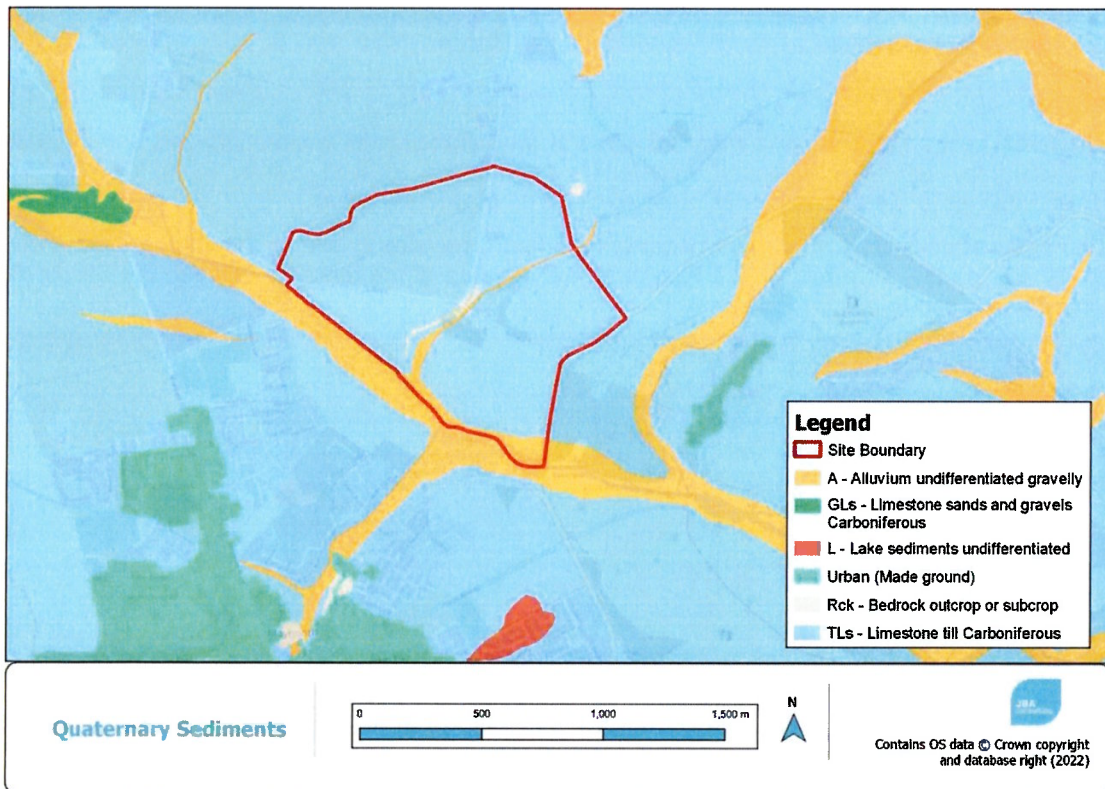


Figure 3-3: Quaternary Sediments (Source: GSI Database)

4 Flood Risk Identification

An assessment of the potential for, and scale of, flood risk at the site is conducted using historic and predictive information. This identifies any sources of potential flood risk to the site and reviews historic information. The findings from the flood risk identification stage of this FRA are provided in the following sections.

4.1 Flood History

A number of sources of flood information were reviewed to establish any recorded flood history at, or near the site. This includes the OPW's national flood information portal, www.floodinfo.ie, and general internet searches.

4.1.1 Floodinfo.ie

The OPW host a national flood information portal, www.floodinfo.ie, which highlights areas at risk of flooding through the collection of recorded data and observed flood events. Refer to Figure 4-1 for an overview of past flood events in the Maynooth / Moygaddy areas.

Two areas of possible groundwater flooding have been identified onsite, at the south-eastern area of the site in close proximity to the Ryewater and an area at the junction between the Blackhole Little Stream and Ryewater River.

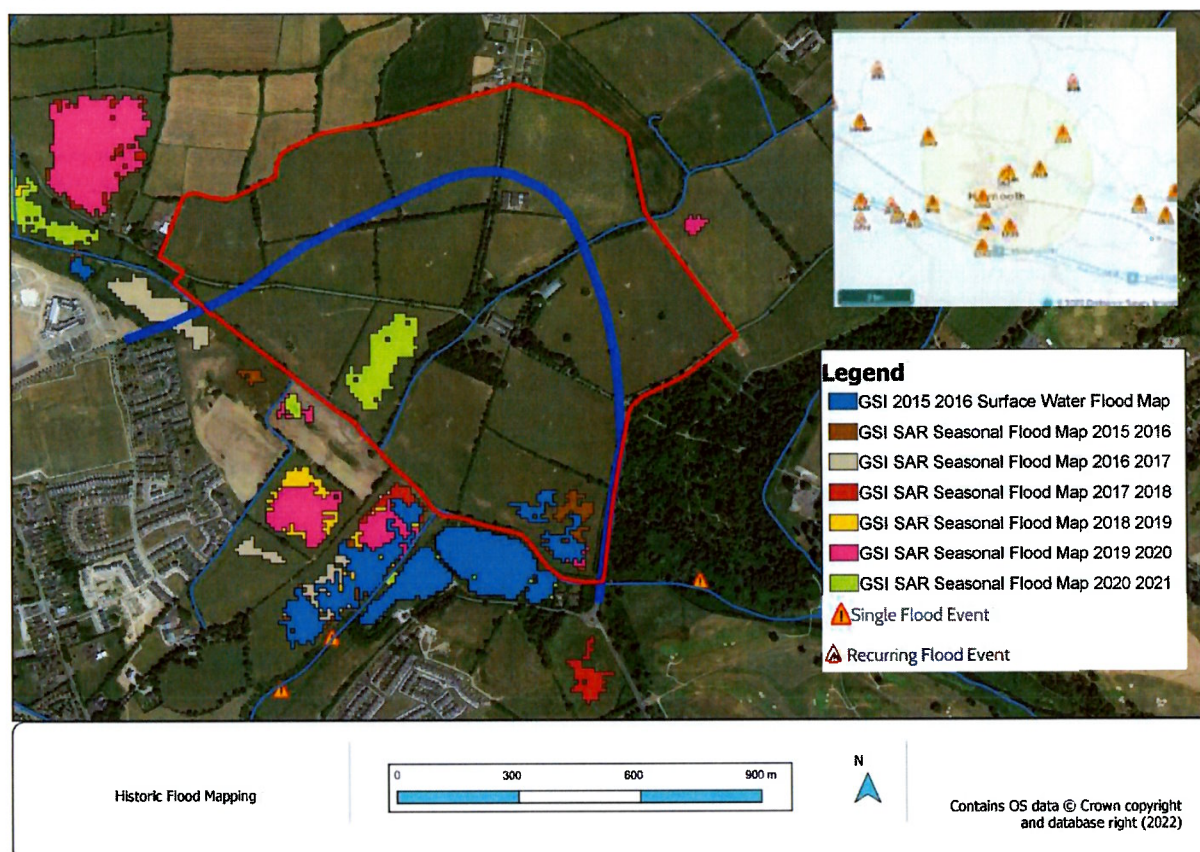


Figure 4-1: Flood History (floodinfo.ie)

Maynooth has been associated with significant flooding in its recent history. A summary of recent flood events is outlined as follows:

- ID-1948 - Lands along the Rye Water were flooded during the November 2000 event
- ID-11489 - Minor flooding along the Lyreen River near the fish ponds during October 2011
- ID-352 - In November 2000, flooding occurred on the Lyreen River at the weir near the fish ponds upstream of the confluence with the Rye Water

- ID-1942 - In June 1993, farmlands were flooded near the M4 motorway culvert and Jackson's Bridge. The flood source was the Lyreen River. Met Éireann estimated the June 1993 event equated to a 1-in-50 year storm;
- ID-1523 - Low lying lands and the R157 Maynooth-Dunboyne regional road in Co. Meath were flooded in 14th-15th November 2002.
- Surface water flooding from the Winter 2015/2016 flood event was identified at the southeast corner of the masterplan site. This flooding is located to the north east of Lyreen River and three artificial fishing ponds in County Kildare, and the surface water flooding close to the Masterplan boundary itself.

There were no historic or predictive groundwater flooding extents identified within a 2.5km radius of the masterplan site

4.1.2 Internet Searches

An internet search was conducted to gather information about whether the existing site was affected by flooding previously. The search returned no results.

4.2 Predictive Flooding

The local area has been subject to several predictive flood mapping or modelling studies and other related studies and plans:

- Meath County Development Plan 2021-2027 Strategic Flood Risk Assessment;
- Eastern Catchment Flood Risk Assessment and Management (CFRAM) Study;
- National Indicative Fluvial Mapping (NIFM) Study.

The level of detail presented by each method varies according to the quality of the information used and the approaches involved.

4.2.1 Meath County Development Plan 2021-2027 Strategic Flood Risk Assessment

In accordance with Section 11 of the Planning and Development Act 2000 (as amended), Meath County Council (MCC) completed a review of the Meath County Development Plan (MCDP) 2013-2019 and subsequently prepared a new MCDP for the period 2021-2027. A Strategic Flood Risk Assessment (SFRA) for the MCDP 2021-2027 was prepared by JBA in accordance with the requirements of 'The Planning System and Flood Risk Management - Guidelines for Planning Authorities' (2009) and Circular PL2/2014 'Flooding Guidelines' by the Department of Housing, Local Government and Heritage. The SFRA provides an assessment of all types of flood risk within the County and assisted MCC in making informed strategic land-use planning decisions and formulate flood risk policies. This flood risk information has enabled MCC to apply 'The Guidelines' sequential approach, and where necessary, the Justification Test, to appraise sites for suitable land zonings and identify how flood risk can be managed as part of the MCDP.

Flood zone mapping for the Moygaddy area was prepared as part of the Maynooth Environs LAP. A review shows that areas along the Rye Water and Blackhole Little Stream are subject to flooding during the 1% (Flood Zone A) and 0.1% (Flood Zone B) AEP fluvial flood events. These areas have accordingly been zoned as 'H1 - High Amenity'. Refer to Figure 4-2.



Figure 4-2: Extract from Maynooth County Plan Zoning (Meath SFRA)

4.2.2 Eastern Catchment Flood Risk Assessment and Management (CFRAM) Study

The primary source of data with which to identify flood risk to the site is the Eastern CFRAM study. The Eastern CFRAM study covers c.6,300 sq.km and involves detailed hydraulic modelling of rivers and their tributaries, along with coastal flood modelling. Flood maps are publicly available for the 10%, 1% and 0.1% AEP fluvial flood events, and covers Maynooth Town (amongst others):

Maynooth was identified as an Area for Further Assessment (AFA) as part of the superseded OPW PFRA study. The AFAs were the focus of the CFRAM studies. The flood extents for the Maynooth area were available from the OPW CFRAM WMS online layers. A review shows lands along the Rye Water and Blackhole Little Stream are subject to flooding during the 10%, 1% (Flood Zone A) and 0.1% (Flood Zone B) AEP fluvial flood events. The CFRAM extents are based on the undefended scenario, and therefore do not take account of flood protection structures such as embankments. Refer to Figure 4-3 for the CFRAM fluvial flood extents and Table 4-1 for CFRAM flood levels in Moygaddy. The study also confirms no flooding on the subject site for the 10%, 0.5% and 0.1% AEP from coastal flood events.

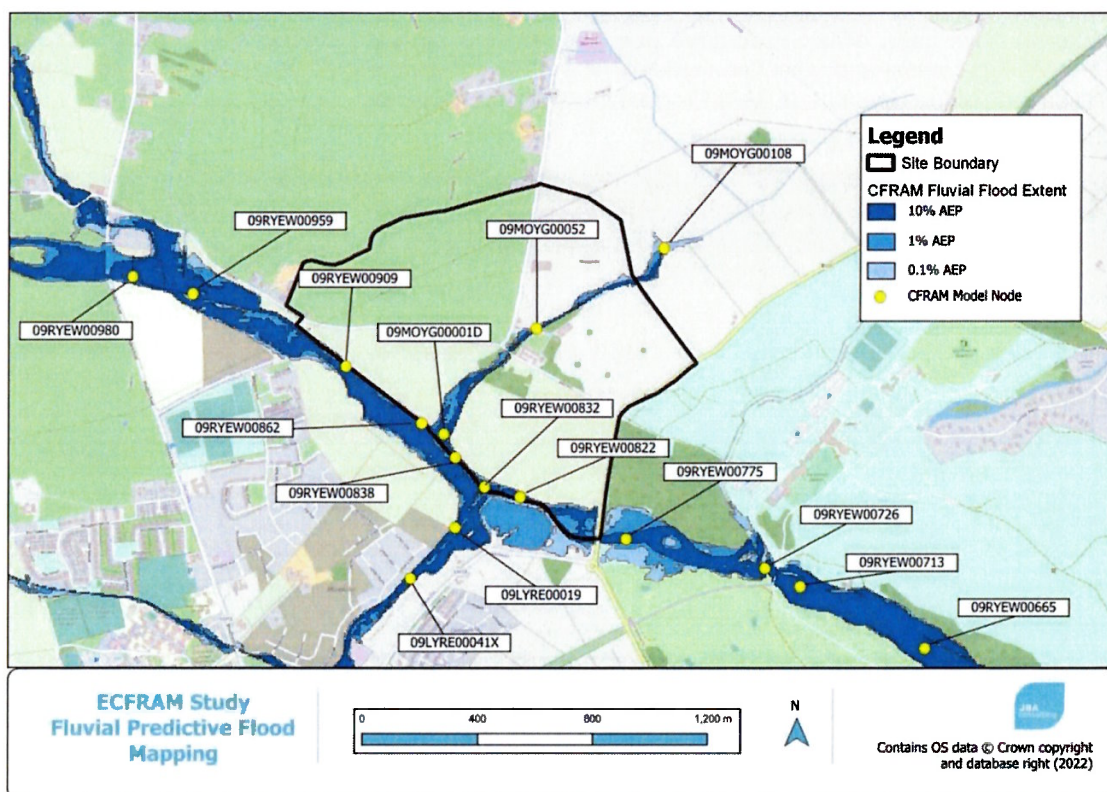


Figure 4-3: ECFRAM Study Fluvial Flood Extents (Source: Floodinfo.ie)

Table 4-1: ECFRAMS Flood Levels (mOD) (Source: Floodinfo.ie)

ECFRAMS Model Node	10% AEP	1%AEP	0.1%AEP
Blackhole Little Stream			
09MOYG00108	57.80	58.21	58.56
09MOYG00052	51.97	52.37	52.80
09MOYG00001D	48.12	48.40	48.52
Ryewater River			
09RYEW00980	51.94	52.12	52.334
09RYEW00959	50.95	51.23	51.29
09RYEW00909	49.70	49.98	50.31
09RYEW00862	47.94	48.19	48.45
09RYEW00838	47.31	47.64	48.04
09RYEW00832	46.89	47.38	47.85
09RYEW00822	46.60	47.04	47.55
09RYEW00775	45.28	45.65	46.11
09RYEW00726	44.64	44.87	45.24
09RYEW00713	44.66	44.88	45.22
09RYEW00665	44.62	44.82	45.11

ECFRAMS Model Node	10% AEP	1%AEP	0.1%AEP
Lyreen River			
09LYRE00019	47.51	47.85	48.08
09LYRE00041X	47.84	48.27	48.68

4.23 National Indicative Fluvial Mapping (NIFM) Study

Data has been produced for catchments greater than 5km² in areas for which flood maps were not produced under the National CFRAM Programme and should be read in this context. The NIFM datasets have been edited to remove overlaps with the datasets produced under the National CFRAM Programme and other flood studies. The NIFM datasets should be read in conjunction with the outputs of the National CFRAM Programme and other studies.

Refer to Figure 4-4 for NIFM flood extents

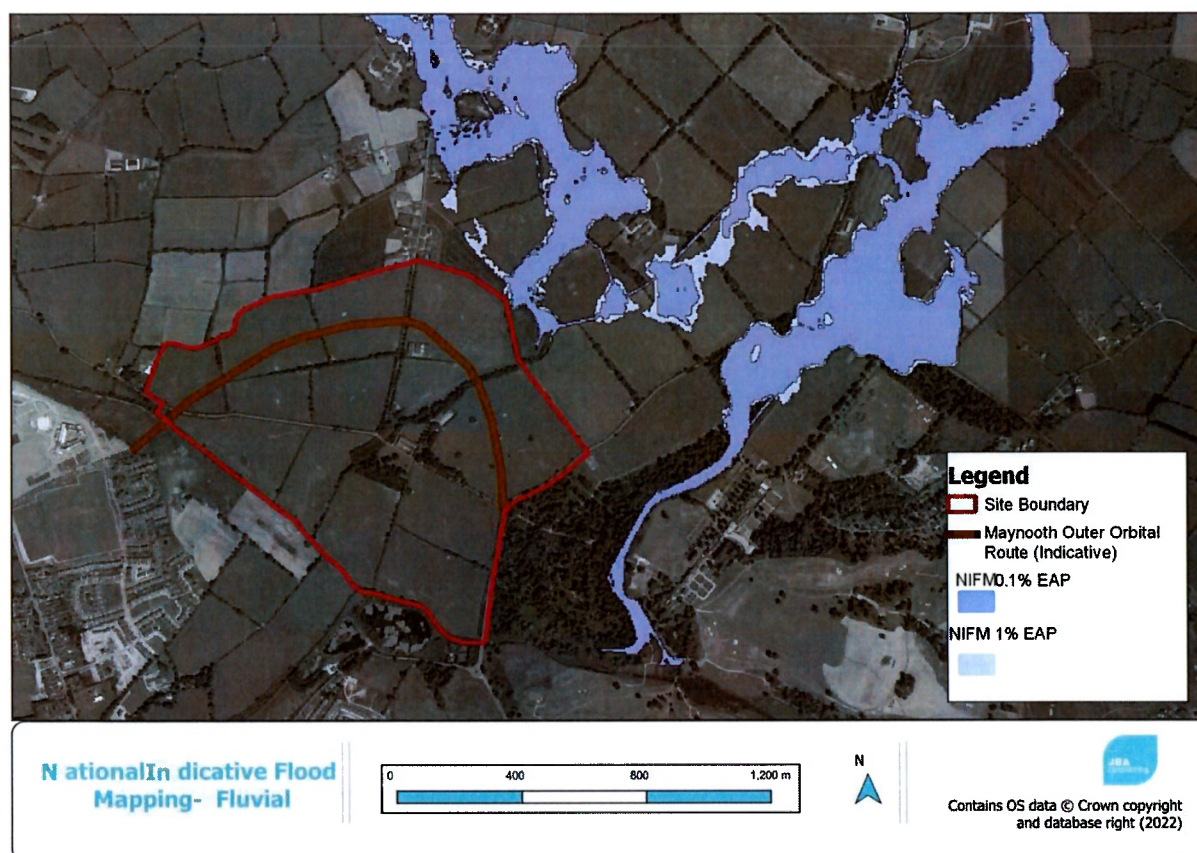


Figure 4-4: NIFM for Moygaddy area (Source: Floodinfo.ie)

4.3 Flood Sources

The initial stage of a site-specific Flood Risk Assessment (FRA) requires the identification and consideration of probable sources of flooding. Following the initial phase of this FRA, it is possible to summarise the level of potential risk posed by each source of flooding. The flood sources are described as follows:

4.3.1 Fluvial / River

There are several watercourses in the area, principally the Ryewater, Blackhole Little Stream and Lyreen River. The Ryewater lies along the Masterplan boundary and discharges to the River Liffey in Leixlip, Co. Kildare. The flood risk is identified as follows:

- The Meath County Development Plan 2021-2027 Strategic Flood Risk Assessment shows that areas of the masterplan site are subject to flooding during the 1% (Flood Zone A) and 0.1% (Flood Zone B) AEP fluvial flood events. The remaining areas are therefore within Flood Zone C;
- The Eastern CFRAM study shows that areas of the masterplan site and the proposed MOOR corridor are located in lands which are subject to flooding during the 10%, 1% (Flood Zone A) and 0.1% (Flood Zone B) AEP fluvial flood events;
- The National Indicative Fluvial Mapping (NIFM) study shows that lands immediately northeast of the masterplan site are subject to flooding during the 1% (Flood Zone A) and 0.1% (Flood Zone B) AEP fluvial flood events, however, the floodwaters do not encroach onto the Masterplan site area.

Based on the identified fluvial flood risk, a hydraulic model has been developed to confirm the Flood Zone A/B flood extents within the site, while also appraising for the potential impacts of climate change and also testing for residual risks (blockage). The hydraulic model is outlined in Section 5, which also includes the flood map outputs.

Utilising hydraulic model outputs site-specific mitigation measures to manage the ongoing fluvial risk are outlined in Section 6. Residual risk is further discussed in Section 6.3.

4.3.2 Tidal / Coastal

Maynooth and Moygaddy are located inland and are not impacted by predictive and historic tidal flooding, as confirmed by the Eastern CFRAM and National Coastal Flood Hazard Mapping (NCFHM) 2021 studies.

The risk of tidal flooding has been screened out at this stage.

4.3.3 Pluvial / Surface Water

Pluvial, or surface water, flooding is the result of rainfall-generated flows that arise before runoff can enter a watercourse or sewer. It is usually associated with high-intensity rainfall events. Flood risk from pluvial sources exists in all areas. Adequate surface water drainage systems will assist with the alleviation and management of pluvial flooding risk.

It is noted that there were instances of surface water flooding from the Winter 2015/2016 flood event at the southeast corner of the masterplan site. This event represented the largest groundwater flood on record. This flood map encompasses fluvial (rivers) and pluvial (rain) flooding in non-urban areas and has been developed under the GWFlooding¹ project as a by-product of the historic groundwater flood map. It was not clear at the time of writing this report whether the flooding in the southeast corner was fluvial or pluvial-related.

Site-specific mitigation measures to manage the pluvial flooding risk are outlined in Section 6. Residual risk is further discussed in Section 6.3.

4.3.4 Groundwater

Review of the historic flooding and GSI datasets outlined in Section Figure 4-1 provides some indication that historic groundwater flooding has occurred within the masterplan site. However, the confidence rating given to the occurrence of the event is 'Low'. Following review of the topography of the affected areas are partially elevated to the Ryewater and Blackhole Little Stream flood plains. If groundwater flooding was to occur onsite it will be contained within the low-lying flood plains.

¹ GWFlooding project (2016-2019) (gsi.ie)

No development is proposed within these areas therefore, the flood risk from groundwater flooding has been screened out at this stage.

5 Hydraulic Model

5.1 Hydrology Assessment

To assist in the estimation of potential flood risk to the proposed development within the Masterplan Area, from each of the Ryewater River, Moygaddy Stream and Lyreen River, this section provides flow estimates for the 1% and 0.1% AEP flood event flows.

5.1.1 Catchment Characteristics

The catchment characteristics for the HEPs have been transferred from corresponding node from FSU database. The physical characteristics of the catchment influence the hydrology, this includes catchment size (AREA), soil type, steepness and the average annual rainfall. The values have been reviewed and the URBEXT value was updated, using the latest CORINE 2018 land use data set and information from myplan.ie. Table 4-1 outlines the parameters calculated for the site catchment. Figure 5-2 overpage details the catchment area.

Table 5-1: Catchment Characteristics (source: OPW FSU)

Descriptor	HEP_1	HEP_2	HEP_3	HEP_4a	HEP_4b	HEP_5	HEP_6
FSU Node	09_301_2	09_1857_2	09_1863_2	09_1241_1	09_1060_3	09_611_3	09_1260_3
Area	59.141	70.314	71.806	17.086	18.00	87.635	193.858
SAAR	805.71	804.55	803.76	807.87	805.46	768.16	785.64
FARL	1	1	1	1	1	1	1
BFI Soil	0.474	0.474	0.475	0.444	0.442	0.473	0.477
URBEXT	0.037	0.031	0.034	0	0	0.045	0.048
MSL	15.108	16.173	16.674	8.992	10.314	16.684	19.465
S1085	2.114	1.832	1.971	6.193	5.444	1.794	2.468
Stream Frequency	29	35	37	7	9	37	99
DrainD	0.806	0.833	0.837	1.096	1.125	0.699	0.809
ArtDrain2	0.2818	0.245	0.2455	0	0	0	0.1116
Soil (number)	2(25%), 4(75%)	2(25%), 4(75%)	2(35%), 4(65%)	2(50%), 4(50%)	2(55%), 4(45%)	2(90%), 4(10%)	2(65%), 4(35%)
M5-2day	54	54	54	54	54	54	54
r	0.33	0.33	0.33	0.33	0.33	0.33	0.33

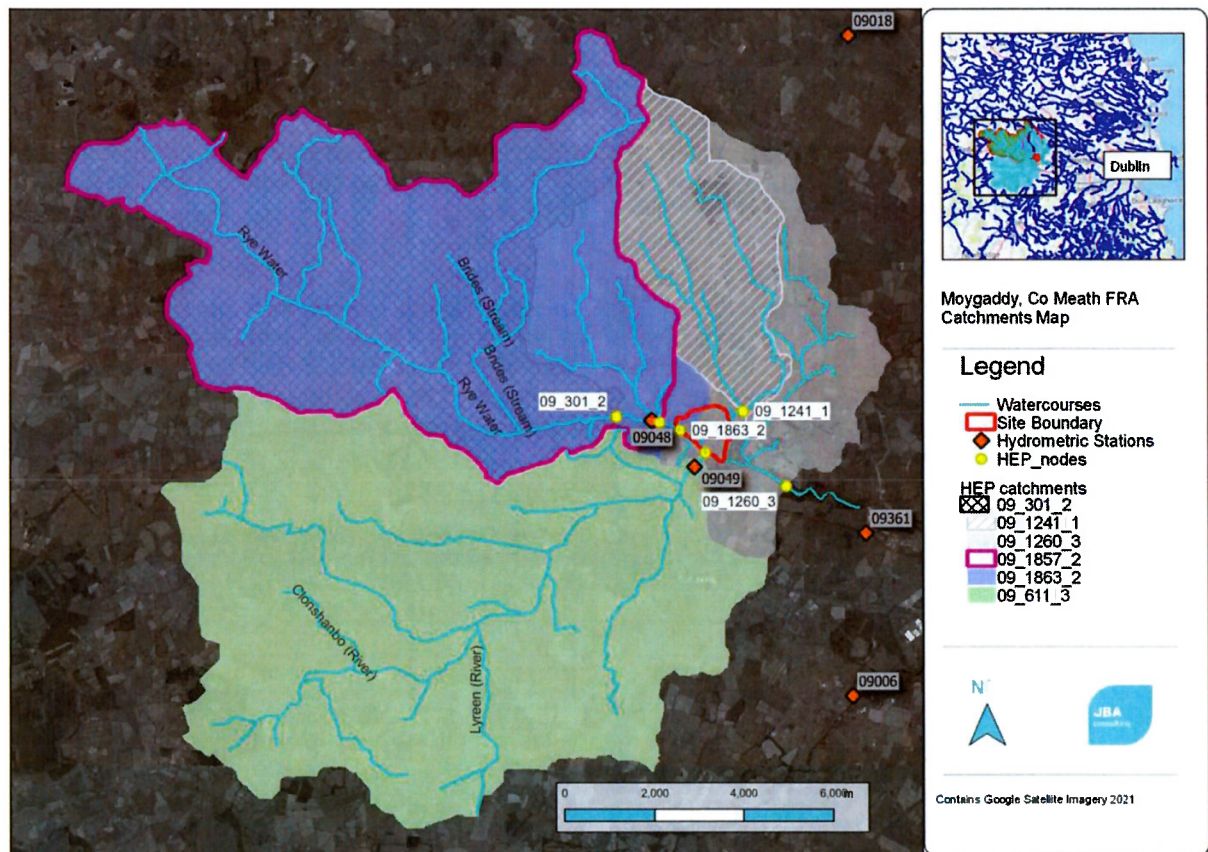


Figure 5-1: Catchment Area

5.1.2 Flow estimation

The flow estimations for the Ryewater River, Blackhole Little Stream and Lyreen Stream are provided in Table 5-2. The FSU (Flood Studies Update) method was selected as it produced more conservative flows and is considered the most applicable method based on the catchment size and characteristics.

Table 5-2: Design Flows (m^3/s)

Site code	Flood peak (m^3/s) for the following return periods (% AEP)						
	50%	20%	10%	5%	2%	1%	0.1%
HEP_1	17.19	26.64	31.97	37.13	43.83	48.82	66.35
HEP_2	20.01	29.21	35.41	41.41	49.02	54.62	73.63
HEP_3	20.75	30.29	36.72	42.94	50.83	56.64	76.35
HEP_4a	6.35	9.85	11.82	13.72	16.20	18.04	24.53
HEP_5	13.71	21.25	25.49	29.61	34.95	38.93	52.91
HEP_6	46.44	71.98	86.37	100.30	118.42	131.88	179.25

5.1.3 Climate Change

Current OPW guidance requires that the effects of climate change be considered when assessing flood risk. The expected increase in peak flows, rainfall and tidal level is provided in the draft OPW guidance which provides allowances for two different climate change scenarios. These are the Mid-Range Future Scenario (MRFS) and the High-End Forecast Scenario (HEFS). The recommended allowances for climate change are given in Table 5-3 below. The potential implications for the proposed development within the Masterplan Area from climate change are discussed further in Section 5.1.3.

Table 5-3: OPW Climate Change Guidance

	MRFS	HEFS
Extreme Rainfall Depths	+20%	+30%
Flood Flows	+20%	+30%
Mean Sea Level Rise	+500mm	+1000m

5.2 Hydraulic Model

To provide a detailed assessment of flood risk within the Masterplan site area, a 1D-2D ESTRY-TUFLOW hydraulic model was constructed. It allows for the modelling of river channels, streams, floodplains and hydraulic structures to predict water levels for a range of scenarios (see Figure 5-2 for the hydraulic model structure). The hydraulic model was developed in the following stages:

- A 1D-2D ESTRY-TUFLOW model of the Ryewater River and Blackhole Little Stream was created using a DTM and available surveyed data;
- The Lyreen River was represented in the 2d model.
- Existing structures were inserted into the model based on survey data and a baseline condition was established, in the vicinity of the site. Refer Figure 5-2 for the existing structure in the vicinity of the masterplan site;
- Hydraulic simulations were run to derive the existing flood extents for the 1% and 0.1% AEP flood events;
- The post-development design has been assessed against a climate change scenario (MRFS);
- Residual risks have been tested to assess the residual risk for the site.

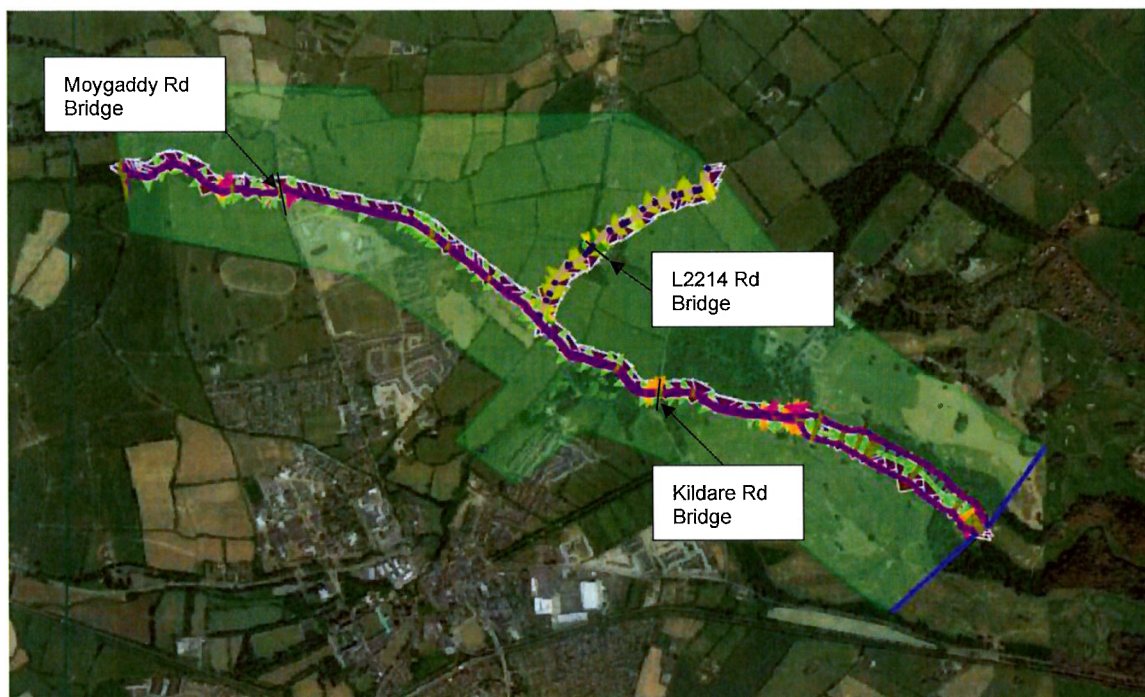


Figure 5-2: Model Schematisation

5.2.1 Site Survey

The flood model of the Ryewater River and Blackhole Little Stream has been based on OPW sourced site survey data (2013). This was supplemented and updated by site specific river survey data undertaken during July 2021 by Murphy Surveys.

A comprehensive site survey was undertaken of the site and wider lands during September 2021. This survey data was incorporated into the model to ensure that the model is based on accurate and up to date data.

5.3 Model Results

The model results are presented in the following sections that focus on the confirmation of Flood Zone A & B, while also providing the post-development flood extents for the various development areas.

5.3.1 Delineation of Flood Zone A and B

The model results show the Masterplan area is not impacted by fluvial inundation during both the 1% and 0.1% AEP fluvial flood events. The flood extents identified in parts of the masterplan site are presented in Figure 5-3 and indicative flood levels are presented in Table 5-4. The complete output from the model is presented in Appendix D.

The outputs from hydraulic model have been compared to the CFRAM model outputs (Figure 4-3) and the results show a good agreement between the two studies. This provides confidence in the produced flood extents and also suggest a well-defined flood plain.

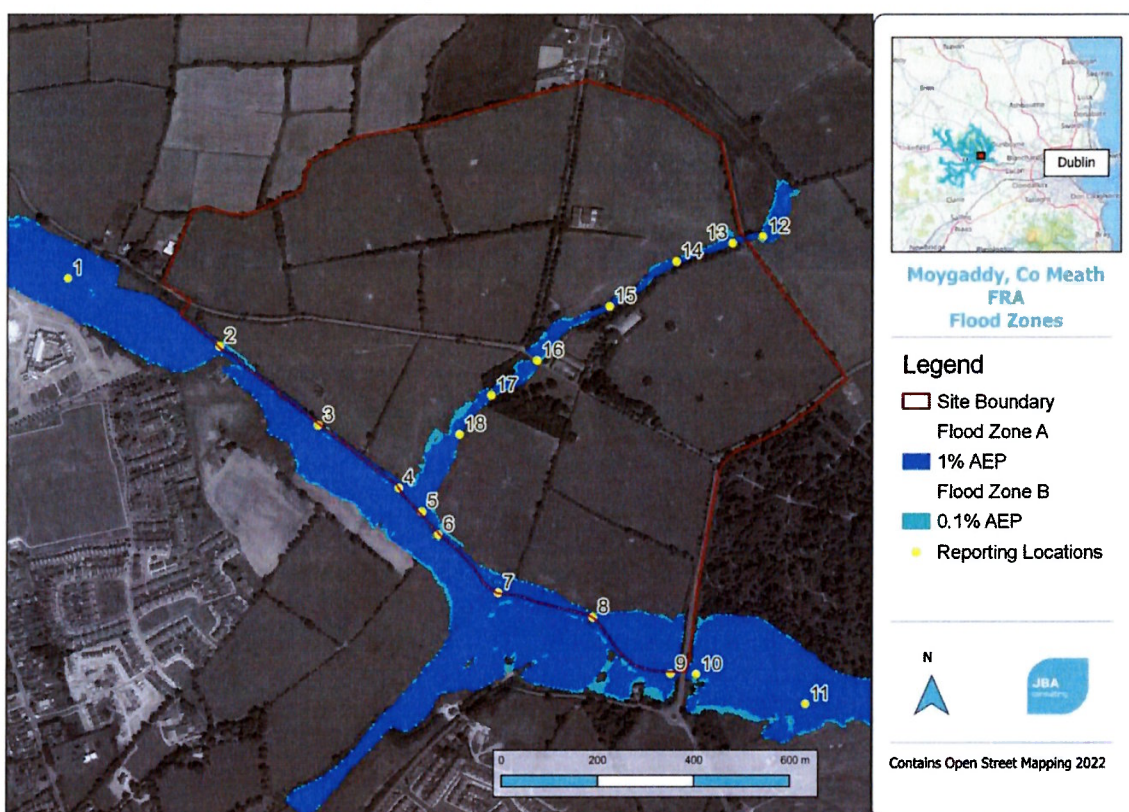


Figure 5-3: 1% and 0.1% AEP fluvial flood extents - pre-development scenario

5.4 Post-Development Model Results

The post-development model results are presented in the following sections. As no development is proposed within Flood Zone A/B the post-development model only includes the proposed bridge structures outlined in Section 5.4.1.

The resulting flood map is presented in Figure 5-5 and levels in Table 5-4.

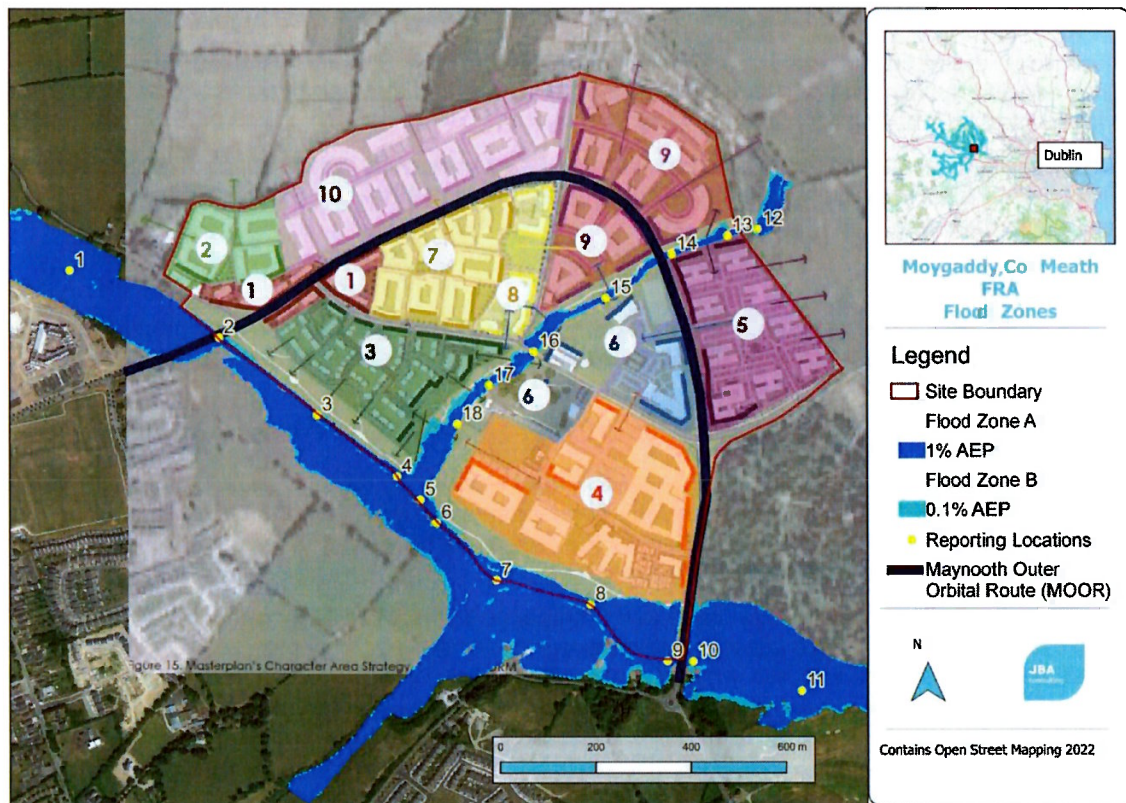


Figure 5-4: 1% and 0.1% AEP fluvial flood extents - post-development scenario

Table 5-4: Flood Levels (mOD)

Reporting Location	1%AEP	0.1%AEP	1% AEP MRFS
1	50.98	51.01	51.00
2	50.17	50.30	50.25
3	49.33	49.39	49.37
4	48.52	48.63	48.58
5	48.72	48.63	48.72
6	48.20	48.36	48.29
7	47.77	47.99	47.90
8	47.12	47.36	47.26
9	46.59	46.90	46.77
10	46.24	46.43	46.35
11	45.68	45.93	45.83
12	56.73	56.91	56.83
13	56.25	56.41	56.34
14	55.22	55.40	55.32
15	54.07	54.15	54.13
16	52.78	53.44	53.04
17	50.34	50.48	50.43
18	49.39	49.53	49.47

5.4.1 Post-Development Bridge Structures

As part of the dynamic modelling exercise a specific scenario has been developed to assess the potential impact of with the proposed bridges in place and the results are presented in the following section. The proposed bridges which are integral to the development of the Masterplan site is presented in Figure 5-5.

Note: that the results presented in the following section are the 1% and 0.1% AEP flood events. All bridge structures will undergo a Section 50 application post granting of planning which will be assessed in accordance with the Section 50 design standards.

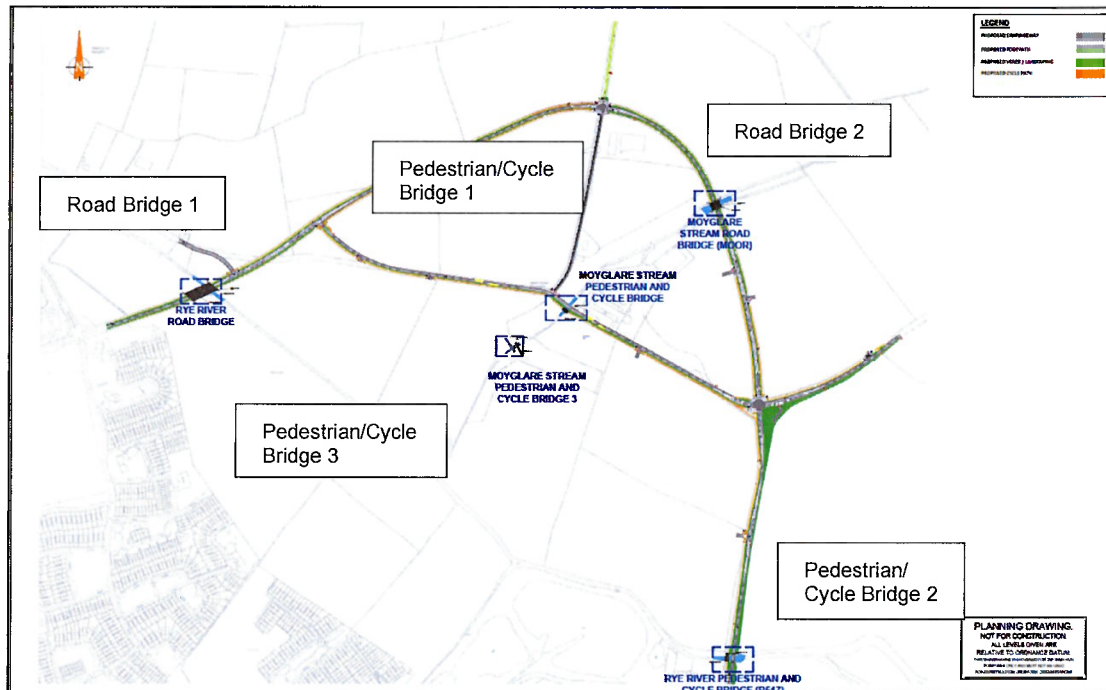


Figure 5-5: Bridge Structures

5.4.1.1 Road Bridge 1

This proposed bridge forms part of the MOOR and it will link the subject land with County Kildare at Moygaddy. This new road bridge will also have a pedestrian and cycle facilities. The proposed bridge soffit level has been set at 51.7mOD which provides a minimum freeboard of 1.10m above the 0.1% AEP flood level. The bridge design is provided in Figure 5-6.

The bridge design is based a multi-span design consisting of two 25m span sections.

The post-development flood levels are presented in Figure 5-6.

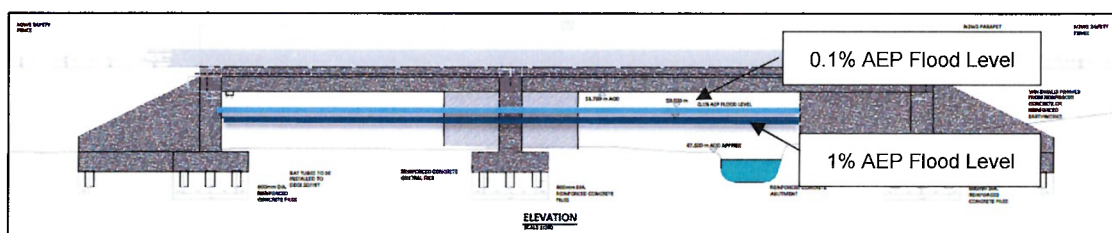


Figure 5-6: Post-development Flood Levels for Road Bridge 1

Post-development modelling has been undertaken of the proposed Road Bridge 1 structure. The results confirm that the bridge has been designed to convey the 1% AEP and 0.1% AEP flood events without increasing flood risk upstream and downstream of the site. The flood levels are presented in Figure 5-6.

Note: The bridge has been designed to the OPW's Section 50 design standards and an application will be submitted to the OPW following granting of planning.

5.4.1.2 Road Bridge 1

This proposed bridge forms part of the MOOR and it will link the Western and Eastern half of the subject Masterplan lands by providing a crossing over the Blackhole Little Stream. The proposed bridge soffit level has been set at 48.3mOD which provides a minimum freeboard of 1.36m above the 0.1% AEP flood level.

The model confirms that there is no impact on level during the 1% AEP or 0.1% AEP events. The post-development flood levels are presented in Figure 5-7.

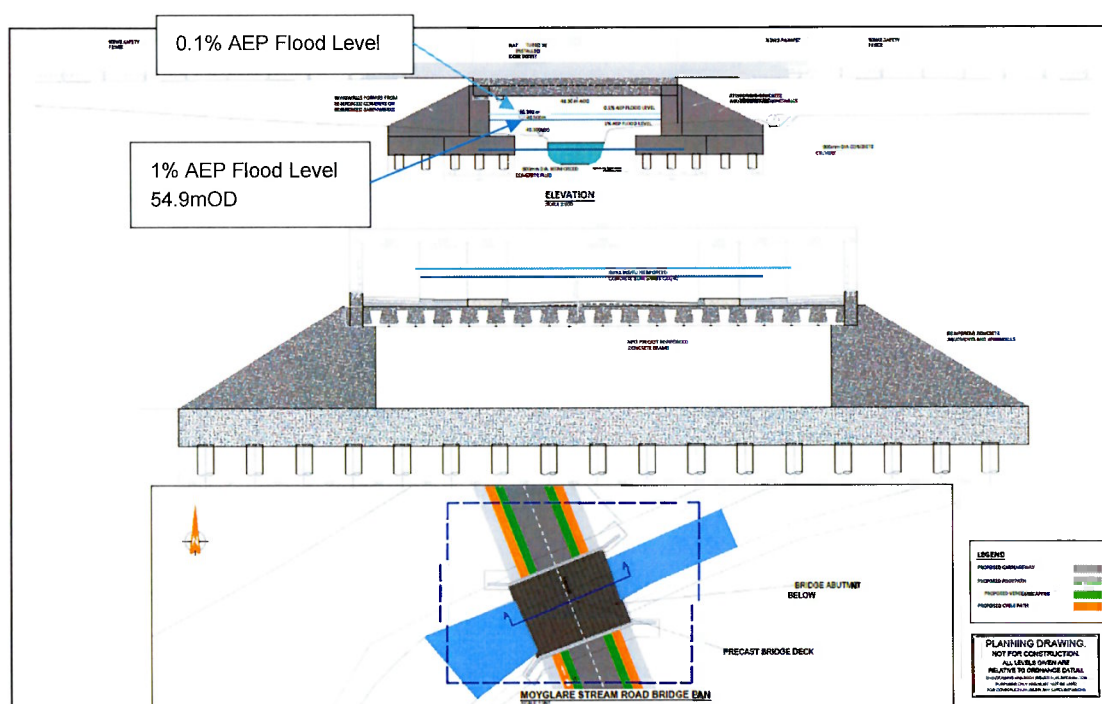


Figure 5-7: Proposed Bridge Layout- Road Bridge 2

5.4.2 Pedestrian Bridge 1 (with Cycle Lane)

The existing road bridge on the L2214 local road which crosses the Blackhole Little Stream does not have existing pedestrian or cycle facilities.

As part of the proposed development within the Masterplan area, it is proposed that a new pedestrian and cycle bridge will be installed to the south of the existing road bridge.

The modelled flood levels are as follows: 1%AEP is 52.82mOD and 0.1% AEP - 53.37mOD. The model confirms that there is no impact on flood level during the 1% AEP or 0.1% AEP events. The post-development flood levels are presented in Figure 5-8

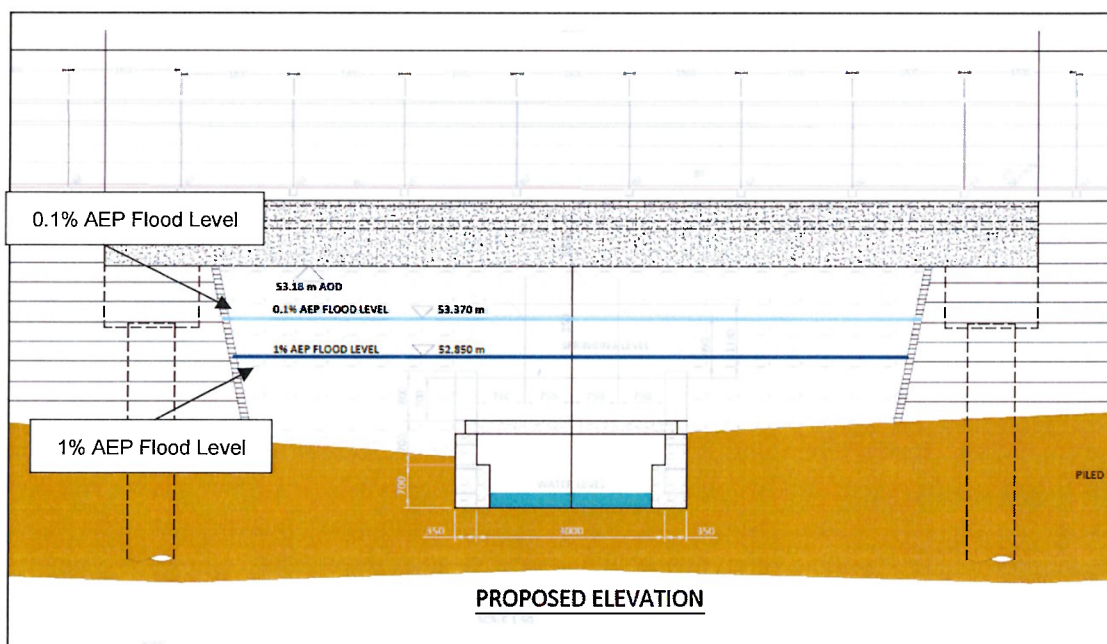


Figure 5-8: Post-development Flood Levels for Pedestrian Bridge 1

As the proposed pedestrian and cycle bridge will be located on the downstream face of the existing road bridge, it has no impact on the hydraulic flow regime and therefore has no impact on the existing flood levels.

5.4.3 Pedestrian Bridge 2 (with cycle lane)

To enhance connectivity and permeability between the Masterplan lands and Maynooth town, a new pedestrian and cycle bridge is proposed to the west of the existing Kildare Bridge.

The 'Pedestrian Bridge 2' is located upstream of the Kildare Bridge, the existing bridge structure over the Ryewater River along the R157. The main flow restriction in the area is caused by the existing Kildare Bridge.

A single span bridge is proposed which is wider than the existing multi-span arch bridge. Refer to Figure 5-9.

The existing 1% and 0.1 % AEP flood event level are 46.57mOD and 46.94mOD respectively. The proposed bridge soffit level has been set at 48.3mOD which provides a minimum freeboard of 1.36m above the 0.1% AEP flood level.

The model confirms that post-construction of the new bridge there is no impact on level during the 1% AEP or 0.1% AEP events. The post-development flood levels are presented in Figure 5-9. Some minor infilling is required in order to facilitate construction of the earthen embankments within Flood Zone A/B.

Furthermore, due to the single span nature of the bridge it will not increase the risk of blockage occurring in the area, nor is there any impact on flood levels upstream of the bridge for both the 1% AEP and 0.1% AEP flood events. The post-development flood levels are presented in Figure 5-9.

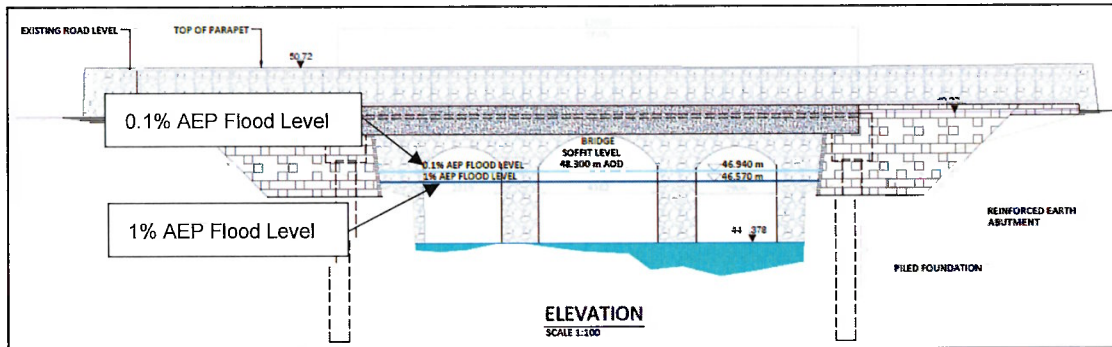


Figure 5-9: Post-development Flood Levels for Pedestrian Bridge 2

5.4.4 Pedestrian Bridge 3

In order to enhance permeability and connectivity between the proposed residential development to the west of the Blackhole Little Stream and the east, a second pedestrian and cycle bridge will be installed. The Pedestrian Bridge 3 provides local walkway access across the Blackhole Little. Refer to Figure 5-10 for the location of the bridge. The bridge will be of lightweight construction with a span of 30m.

The modelled 1% AEP and 0.1% AEP flood levels at the bridge are 50.20mOD and 50.35mOD respectively.

The bridge will undergo a Section 50 application to the OPW post-planning.

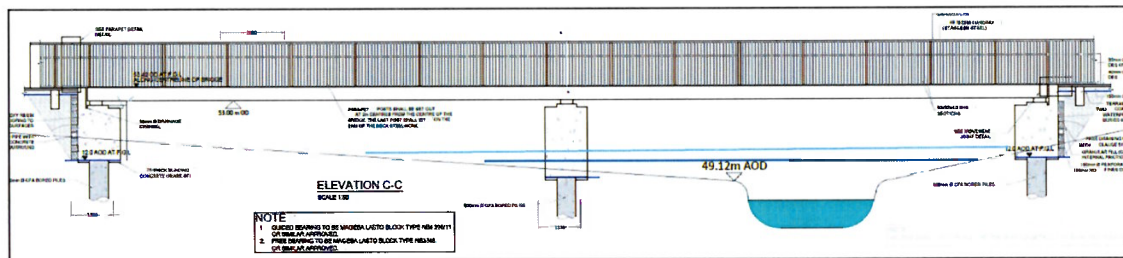


Figure 5-10: Pedestrian and cycle Bridge 3 Location

5.5 Office (Areas 5, 9 and 10)

With reference to Figure 2-1, the Office space covers Area 5 (Eastern), 9 (Central) and 10 (western) sections of the masterplan. Areas 5 and 9 are located adjacent to the Blackhole Little Stream. Review of Figure 5-11 confirms that all the office area are located in Food Zone C.

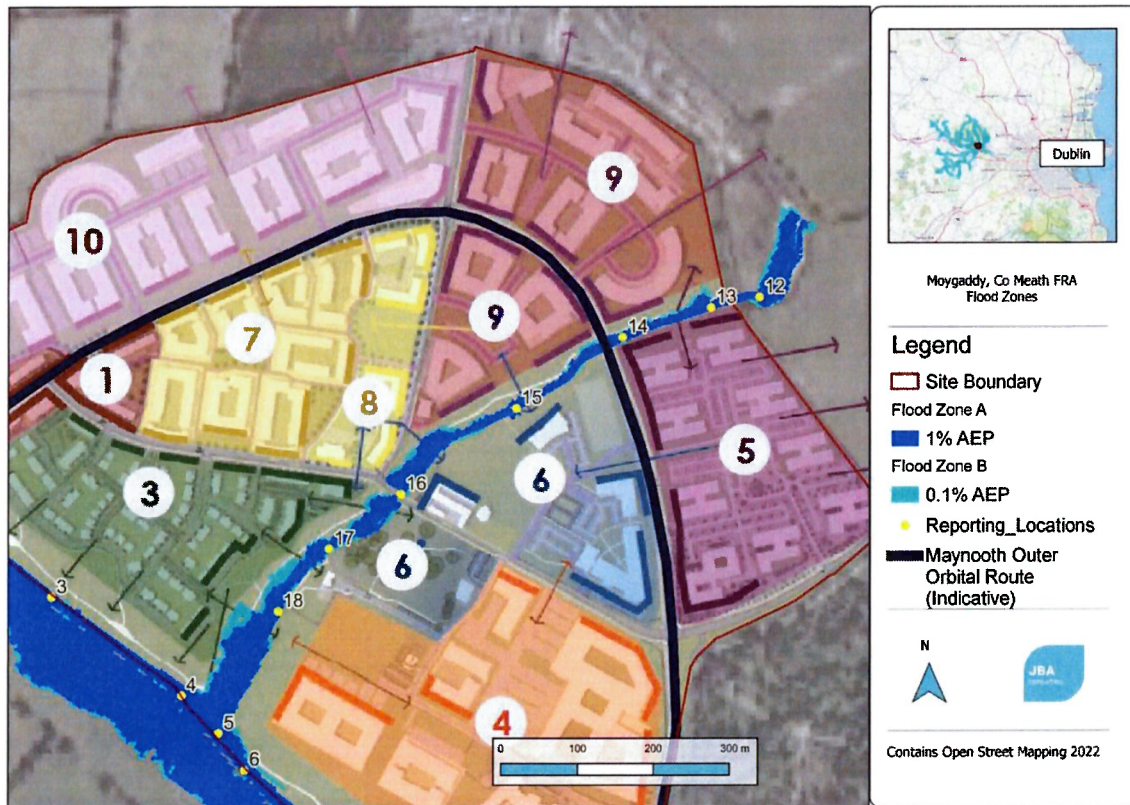


Figure 5-11: Office Areas (5,9 & 10)- Flood Zone

5.6 Primary Care & Nursing Home

The Primary Care & Nursing Home is located in Area 4 of the Masterplan. The Blackhole Little Stream runs along the site to the west and the Ryewater to the south. All areas of the development have been located on Flood Zone C, refer to Figure 5-12 for the flood extents in proximity to the Primary Care & Nursing Home.

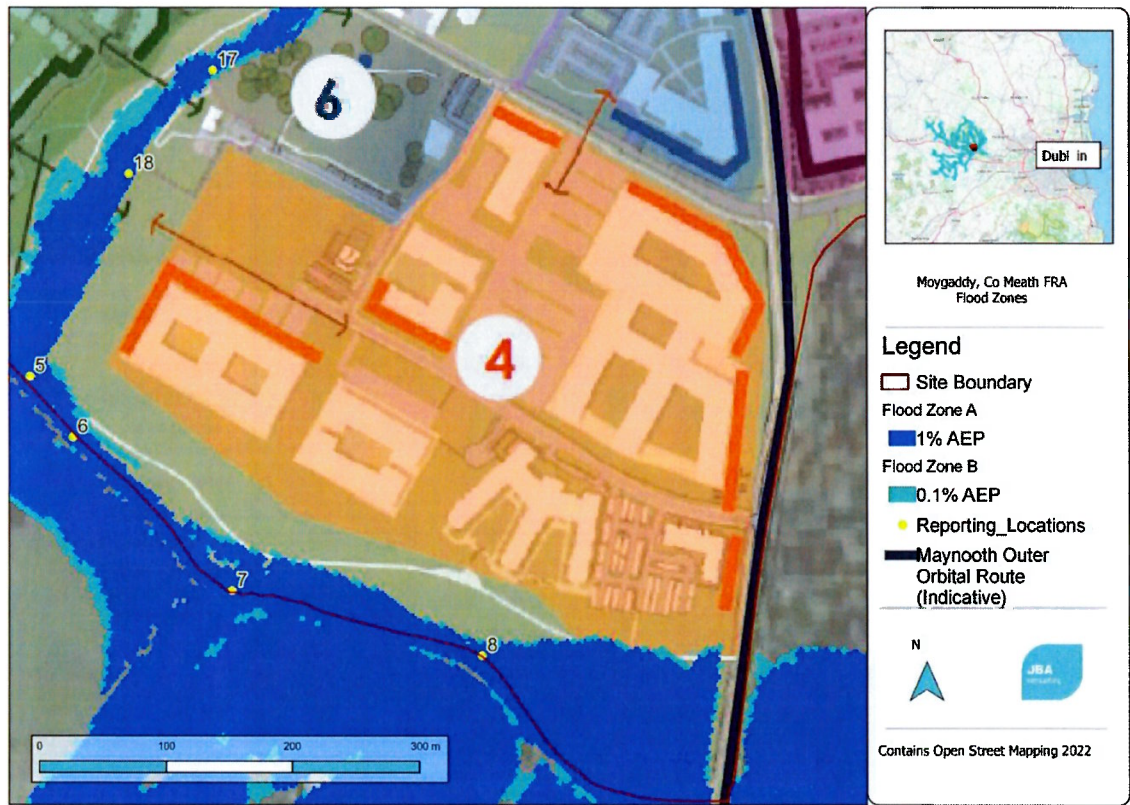


Figure 5-12: Primary Care & Nursing Home- Flood Zone

5.7 MOOR

The Maynooth Outer Orbital Route (MOOR) is the main road infrastructure that connects the development to the wider Maynooth area. The majority of the MOOR is located in Flood Zone C, however it does cross the Ryewater and Blackhole Little Stream. Where the MOOR infrastructure crosses the Ryewater/ Blackhole Little Stream a bridge structure will be provided with the soffit level placed above the 1% AEP and 0.1% AEP flood levels. Figure 5-13 provides the flood extents along the MOOR route.

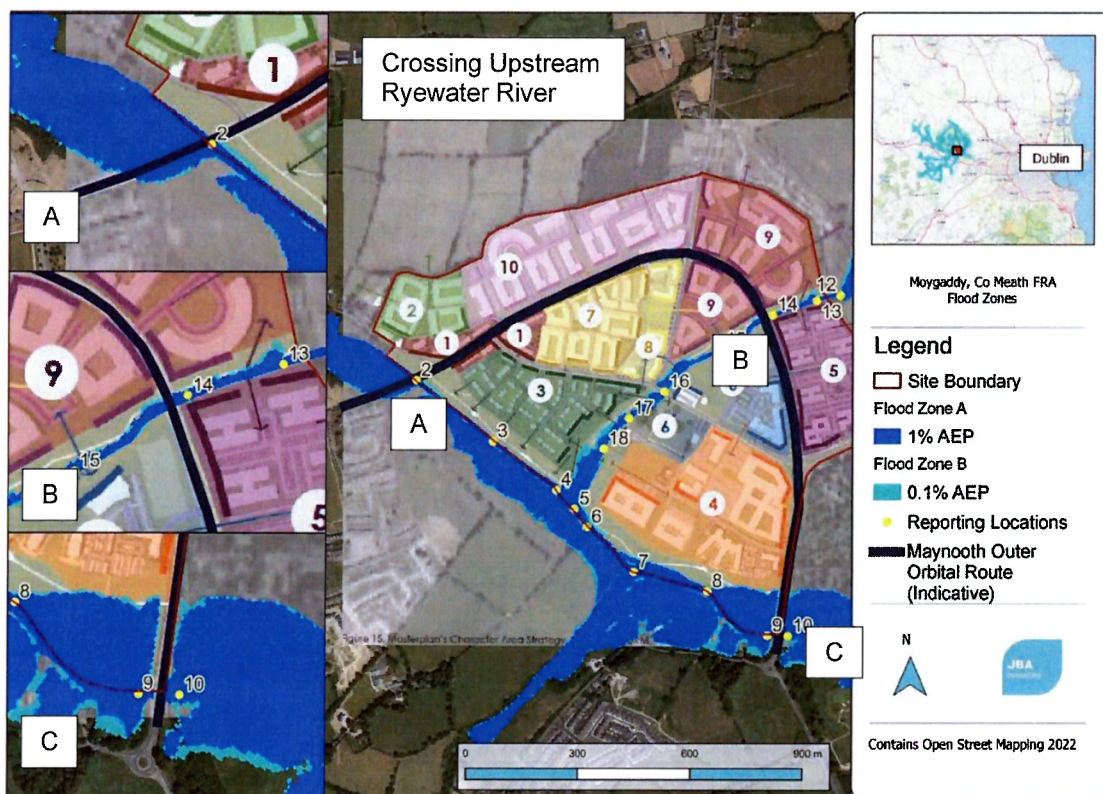


Figure 5-13: MOOR- Flood Zone

5.8 SHD application for 360 Homes, Creche, Scout Den, Public Park & playground

The SHD will consist of 360no Homes, creche, Scout Den, Public Park and Playground, located in zones 3, 6 and 4. The locations are provided in Figure 5-14.

The areas are follows;

- Area 2 - South-West Residential Zone
- Area 3 - Southern Residential Area
- Area 6 - Moygaddy Central - Local Services, Leisure & Tourism
- Area 7 - Central Residential Area and
- Area 8 - Transitional residential Area

Review of Figure 5-14 confirms that development under the SHD areas are all located in Flood Zone C and are not impacted by any of the modelled flood events.

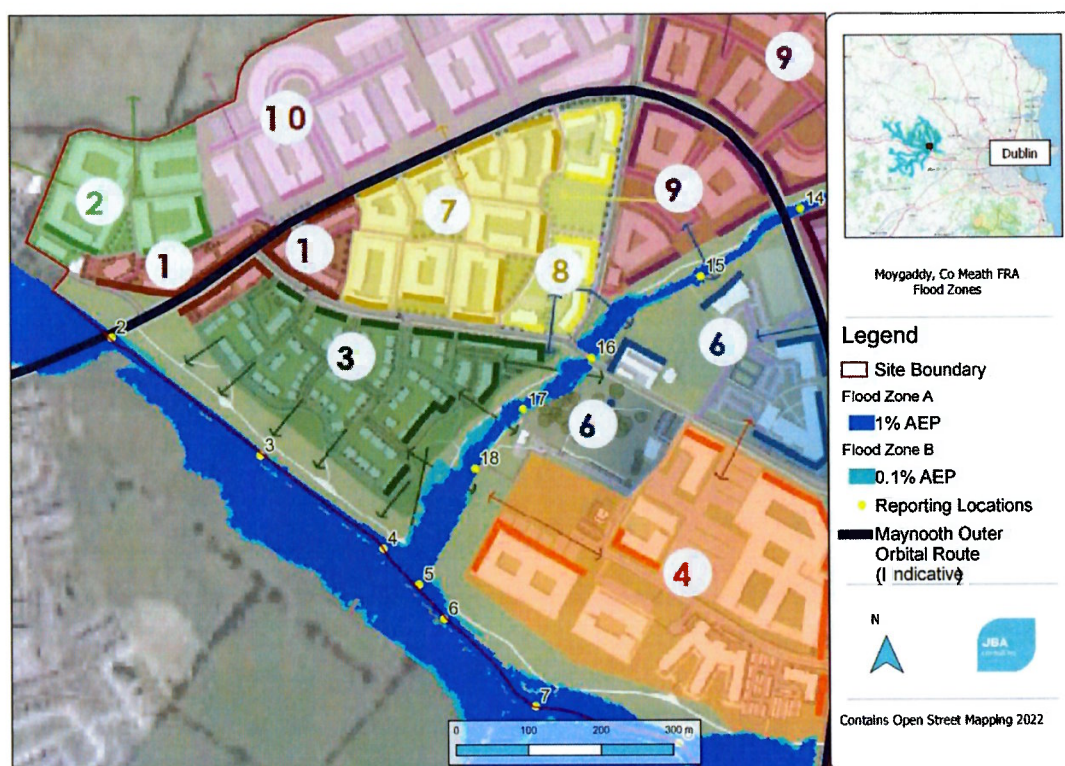


Figure 5-14: SHD Flood Zone

6 Flood Risk Assessment

6.1 Flood Risk

A review of the available historic and predictive flood risk information contained in Section 4 confirms that the majority of the Masterplan site is located in Flood Zone C and it has not been identified as being at risk from flooding during the 0.1% AEP fluvial event. Localised areas of flood extent are in proximity to the Blackhole Little Stream and Ryewater River, however these areas are zoned as high amenity and no development is proposed in these areas save for bridge infrastructure.

The flood extents have been confirmed by the development of a hydraulic model based on up-to-date survey information.

The proposed residential properties, creche, public park & scout den which are subject to a SHD planning application will be located in Flood Zone C, and not at risk of a 0.1% AEP flood event. Further mitigating measures and analyses is undertaken in Section 6.

The proposed bridges will not be impacted by the 1% AEP and 0.1% AEP flood events and will not increase the flood risk elsewhere. A Section 50 assessment for each bridge structure will be prepared following the granting of planning.

6.1.1 Finished Floor Levels (Fluvial / River Flood Risk)

Based on a review of the available and predictive information, all residential development within the masterplan area will be located wholly within Flood Zone C. Therefore, site-specific mitigation measures are not required to manage the ongoing fluvial risk.

For any residential dwelling located in proximity to the Ryewater River or Blackhole Little Stream, the minimum FFL needs to be set 300mm above the 1% AEP climate change (MRFS) flood event.

With reference to Figure 5-3 which provides the monitoring point locations, the minimum FFLs along the Ryewater River and Blackhole Little Stream is provided in Table 6-1, also refer to Appendix D. The provided minimum FFL will also protect against the 0.1% AEP flood event.

Table 6-1: Minimum FFLs (mOD)

Reporting Location	1% AEP MRFS	
1	51.03	51.33
2	50.50	50.8
3	48.63	48.93
4	48.60	48.9
5	56.83	57.13
6	56.34	56.64
7	55.32	55.62
8	53.10	53.4
9	48.34	48.64
10	47.95	48.25
11	46.84	47.14
12	46.39	46.69

6.1.2 Surface Water Drainage Systems (Pluvial / Rainfall Flood Risk)

The existing masterplan site is greenfield in nature. A stormwater system has been designed by OCSC for the purposes of each individual planning application and specific design measures will be included within the proposed development to manage surface water flows. It is recommended that the system is designed in accordance with the Greater Dublin Strategic Drainage Strategy (GSDS) guidance document and the Meath County Development Plan 2021-2027 and associated SFRA. This recommends a minimum allowance for climate change of 20% increase in rainfall depths / intensities for the 100-year Mid-Range Future Scenario (MRFS) event. We note that OSCS have acknowledged that these criteria are incorporated into their designs.

6.2 Climate Change

In accordance with the OPW guidelines, it is necessary to assess the risk associated with climate change. The masterplan site has been assessed in accordance with the Mid-Range Future Scenario (MRFS) for 1% AEP. FFL have been set to be a minimum of 300mm above the peak water level reported for the MRFS scenario

6.3 Residual Risk

Residual risks are defined as risks that remain after all risk avoidance, substitution and mitigation measures have been taken. This flood risk assessment identifies the following as the main sources of residual risk to the development proposal:

- Blockage of Bridge structures,
- Failure of the surface water drainage systems (pluvial risk).

As part of the FRA assessment, all proposed and existing bridges that could impact upon the masterplan site will be tested for blockage (66%). For the larger road bridge (Road Bridge 1) a more realistic blockage value of 33% has also been adopted. The purpose is to ensure that any development within the masterplan site will not be impacted during a blockage scenario. The result of the modelling confirms that the provided minimum FFLs in Table 6-1 is sufficient to protect the development from the identified residual risks.

To protect against the potential failure of the stormwater system it is recommended that a threshold of 150mm is provided from the ground floor level to the surrounding hardstanding area.

The climate change assessment for the masterplan site has been based on the assessment outlined in Section 5.1.3. The minimum FFL onsite is based on the 1% AEP MRFS climate change event.

7 Conclusion

JBA Consulting has undertaken a site-specific Flood Risk Assessment (FRA) for the masterplan site located in the townland of Moygaddy, Co Meath. The existing site is greenfield in nature.

A review of the available sources of flooding indicates there are no instances of historic flooding on-site, and the site is at a low risk of fluvial / river flooding.

This FRA has determined that the site is predominantly located within Flood Zone C. Localised areas in proximity to the Blackhole Little Stream and Ryewater River are within Flood Zone A, however as these areas are zoned High Amenity, it is noted that no development is proposed in these areas save for bridge & utility infrastructure. The residential, office, nursing home and primary care development will be located in Flood Zone C., therefore does not require site-specific mitigation measures to manage the risk of fluvial flooding.

Climate change has been assessed for the development for the Mid-Range Future Scenario (MRFS). At a minimum, all FFLs onsite will be placed 300mm above the 1% AEP MRFS climate change and the relevant minimum FFLs have been provided for the various model nodes along the Ryewater River and Blackhole Little Stream.

Residual risks have been assessed for the development such as the potential blockage of existing and proposed bridges that could impact upon the site. The results confirm that the proposed minimum FFLs provided are sufficient to protect against the identified residual risks.

The various proposed bridge structures have been included within the model and the results confirm that they will not be impacted by the modelled 1% AEP and 0.1% AEP flood events, and nor will they increase flood risk elsewhere. A Section 50 application will be submitted for each structure to the OPW following the granting of planning.

This FRA was undertaken in accordance with 'The Planning System and Flood Risk Management - Guidelines for Planning Authorities' (2009), and agrees with the core principles contained within.

Appendices

A Appendix x- Understanding Flood Risk

Flood Risk is generally accepted to be a combination of the likelihood (or probability) of flooding and the potential consequences arising. Flood Risk can be expressed in terms of the following relationship:

Flood Risk = Probability of Flooding x Consequences of Flooding

A.1 Probability of Flooding

The likelihood or probability of a flood event (whether tidal or fluvial) is classified by its Annual Exceedance Probability (AEP) or return period years, a 1% AEP flood 1 in 100 chance of occurring in any given year. In this report, flood frequency will primarily be expressed in terms of AEP, which is the inverse of the return period, as shown in the table below and explained above. This can be helpful when presenting results to members of the public who may associate the concept of return period with a regular occurrence rather than an average recurrence interval and is the terminology which will be used throughout this report.

Table: Conversion between return periods and annual exceedance probabilities

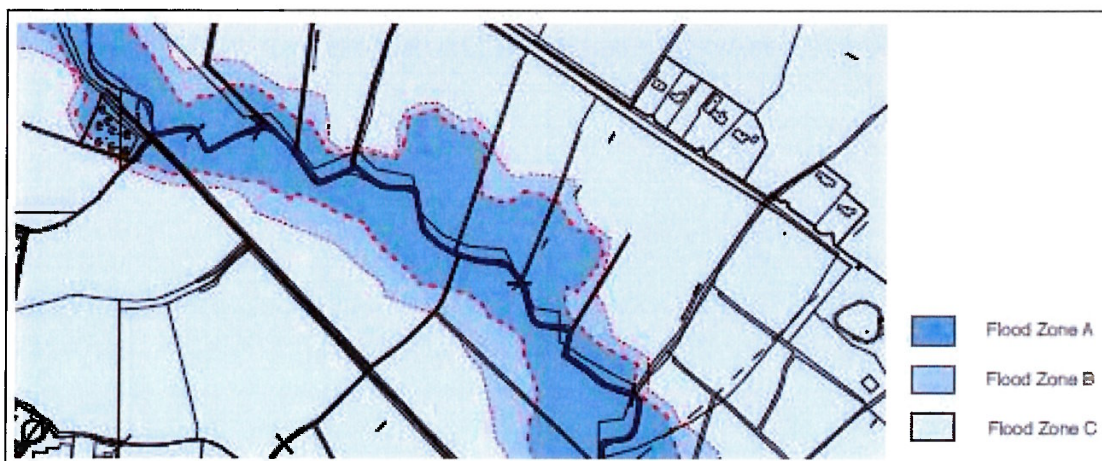
Return period (years)	Annual exceedance probability (%)
2	50
10	10
50	2
100	1
200	0.5
1000	0.1

A.2 Flood Zones

Flood Zones are geographical areas illustrating the probability of flooding. For the purpose of the Planning Guidelines, there are 3 types of levels of flood zones, A, B and C.

Zone	Description
Flood Zone A	Where the probability of flooding is highest, greater than 1% (1 in 100) from river flooding or 0.5% (1 in 200) for coastal/ tidal Flooding
Flood Zone B	Moderate probability of flooding, between 1% and 0.1% from rivers and between 0.5% and 0.1% from coastal/ tidal.
Flood Zone C	Lowest probability of flooding, less than 0.1% from both rivers and coastal/ tidal.

It is important to note that the definition of the flood zones is based on an undefended scenario and does not take into account the presence of flood protection structures such as flood walls or embankments. This is to allow for the fact that there is a residual risk of flooding behind the defences will be maintained in perpetuity.



A.3 Consequences of Flooding

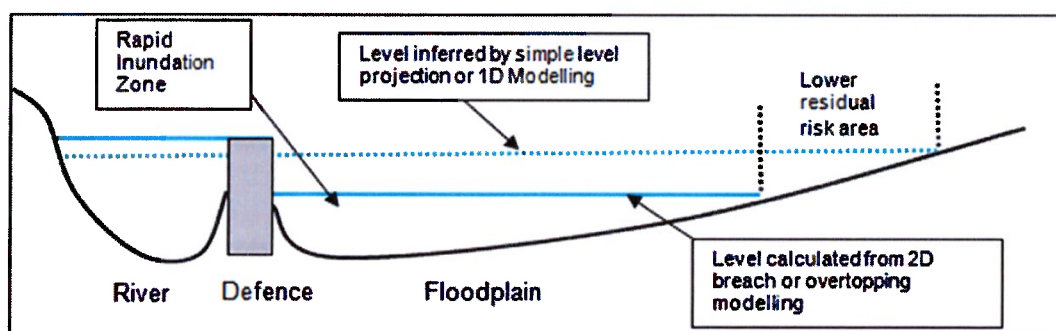
Consequences of flooding depend on the Hazards caused by flooding (depth of water, speed of flow. Rate of onset, duration, wave-action effects, water quality) and the vulnerability of receptors (type of development, nature, e.g. age-structure of the population, presence and reliability of mitigation measures etc.)

The 'Planning System and Flood Risk Management' provides three vulnerability categories, based on type of development, nature, which are detailed in the Guidelines, and are summarised as:

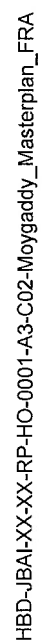
- **Highly vulnerable**, including residential properties, essential infrastructure and emergency service facilities
- **Less vulnerable**, such as retail and commercial and local transport infrastructure, such as changing rooms.
- **Water compatible**, including open space, outdoor recreation and associated essential infrastructure, such as changing rooms.

A.4 Residual Risk

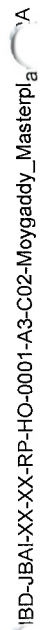
The presence of flood defences, by their very nature, hinder the movement of flood water across the floodplain and prevent flooding unless river levels rise above the defence crest level or a breach occurs. This is known as residual risk:

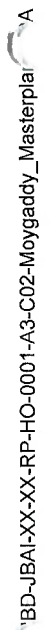


B Site Layout



C Bridge Design





D Hydraulic Model Results

D.1 1D Model Flows

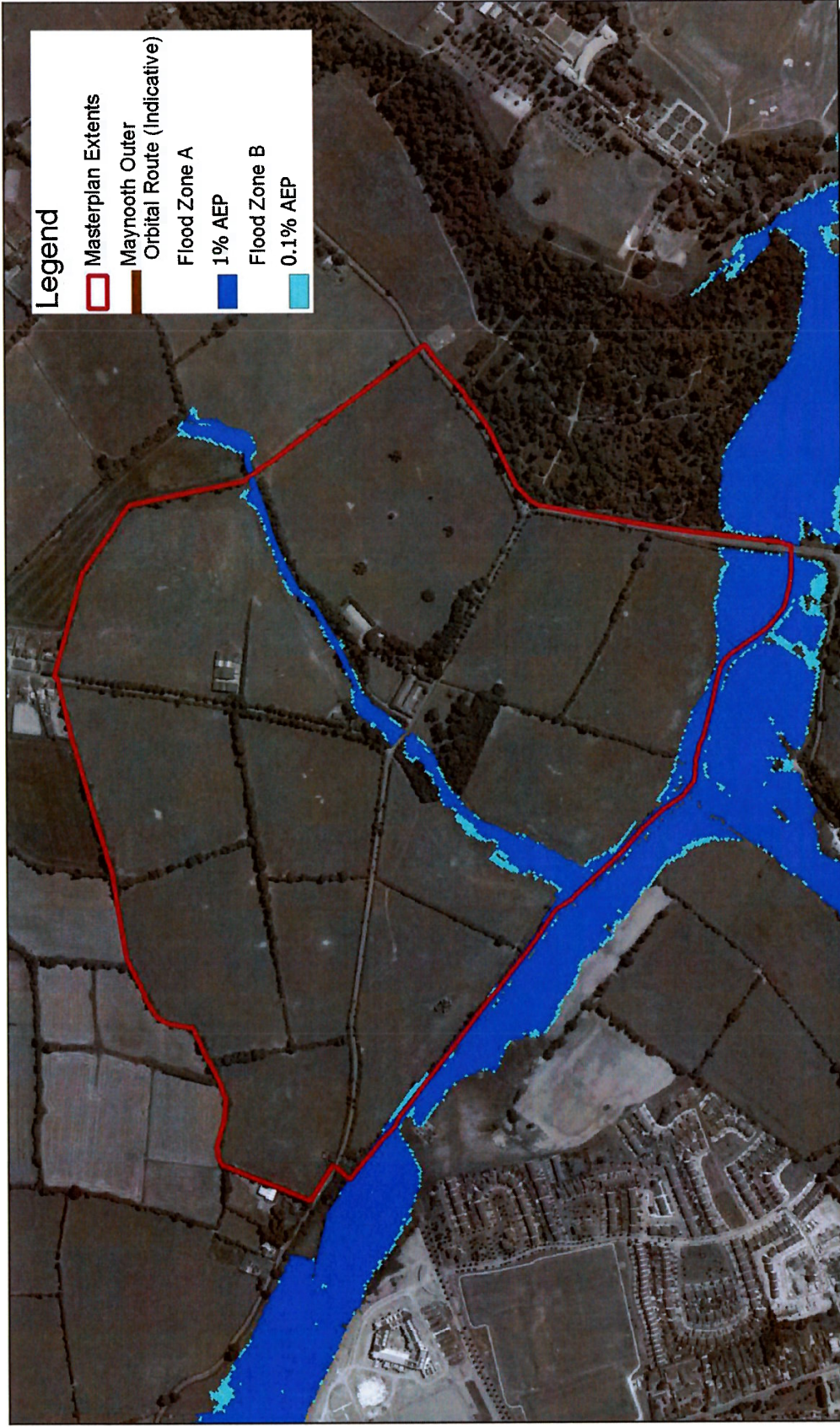
Table A- 1: Modelled Existing Scenario 1D Peak Levels (mOD) from Present Day (Current) events on Ryewater River

Node	1% AEP	0.1% AEP	1% AEP MRFS
862b.1	48.5152	48.6282	48.5815
944.1	50.9766	51.0124	50.9993
926.1	50.5178	50.5798	50.5539
1R04.1	50.4107	50.5111	50.47
1R04.2	50.3814	50.4927	50.4479
1R05.2	50.3564	50.4755	50.4283
1R06a.1	50.3298	50.4533	50.4047
1R06a.2	50.2768	50.4052	50.3548
1R07.2	50.1678	50.3007	50.2487
1R08.1	50.0948	50.2187	50.1701
1R08.2	49.6562	49.7362	49.7036
1R09.1	49.3313	49.3949	49.3681
1R09.2	49.0241	49.063	49.0412
000X.2	48.3987	48.5057	48.471
862a.2	48.3637	48.4859	48.431
850.1	48.1991	48.3551	48.2904
838.1	47.8758	48.0756	47.9978
832.1	47.7711	47.9857	47.904
822.1	47.5025	47.7656	47.6649
1R12.1	47.1217	47.3575	47.2606
1R12.2	46.992	47.2148	47.1204
801.1	46.751	47.0156	46.9024
790.1	46.5862	46.9049	46.7731
788A.1	46.525	46.8323	46.7074
788.1	46.3524	46.5492	46.4657
785.1	46.2398	46.4267	46.35
775.1	45.9914	46.1723	46.097
1R16.1	45.9104	46.1181	46.0309
1R16.2	45.6814	45.9283	45.8257
742.1	45.314	45.5813	45.4728
735.1	45.1852	45.464	45.3478
733D.1	45.4462	45.431	45.3118
733.1	45.4247	45.4295	45.3102
732.1	45.0994	45.3965	45.2742
726.1	44.9494	45.2635	45.1306
723A.1	44.8749	45.1848	45.0538
723.1	44.7445	44.9908	44.8895
720.1	44.7103	44.9516	44.8525
713.1	44.6887	44.9267	44.8291

Table A- 2: Modelled Existing Scenario 1D Peak Levels (mOD) from Present Day (Current) events) on Moygaddy Stream

Node	1% AEP	0.1% AEP	1% AEP MRFS
108.1	58.2463	58.3764	58.3247
097W.1	57.691	57.7888	57.7507
097W.2	56.8717	57.0403	56.974
097X.2	56.7292	56.909	56.8345
91.1	56.2464	56.4096	56.338
2R13.1	56.0133	56.2031	56.1248
2R12.1	55.2243	55.3971	55.3247
2R11.1	54.7584	54.9523	54.8727
2R10.1	54.1255	54.2294	54.1837
2R09.1	54.0677	54.1547	54.1251
2R08.1	53.3826	53.5292	53.4443
2R08.2	52.8672	53.4229	53.0742
2R07.1	52.7953	53.4476	53.0198
2R06W.1	52.7823	53.4424	53.0386
2R05.1	0	0	0
2R04.1	51.3359	51.4777	51.4104
2R03.1	51.0603	51.2278	51.1539
29.1	50.3436	50.4805	50.4256
28.1	50.2802	50.4117	50.3589
19.1	49.3925	49.529	49.4734
19.2	48.8728	48.9851	48.9408
2R02.2	48.7254	48.8481	48.803
2R01.1	48.505	48.6139	48.5759
000W.1	48.6324	48.6105	48.6732
000W.2	48.7191	48.6272	48.7213

E Flood Zones



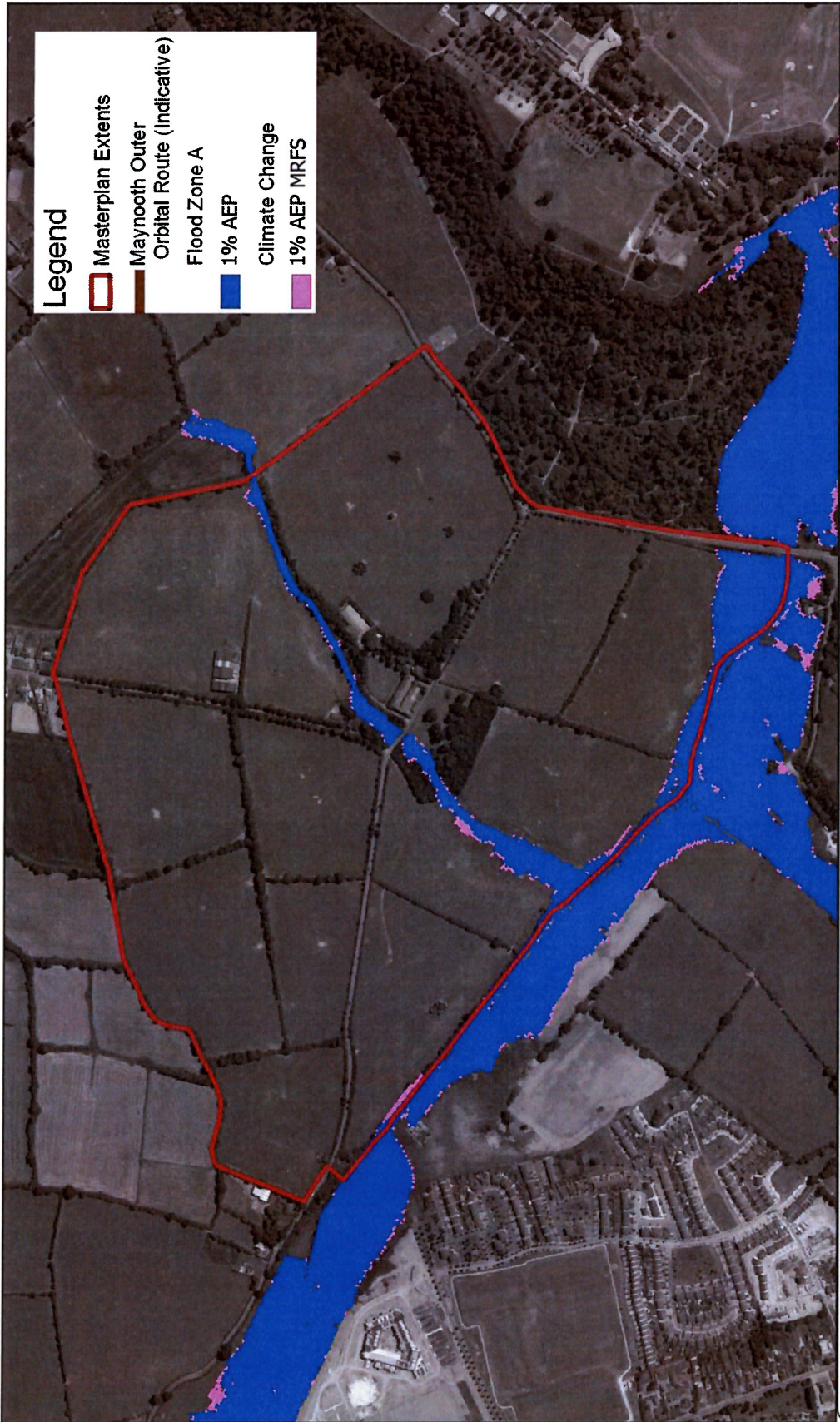
- Legend**
- Masterplan Extents
 - Maynooth Outer Orbital Route (Indicative)
 - Flood Zone A
 - 1% AEP
 - Flood Zone B
 - 0.1% AEP



Contains Google Satellite Imagery © (2022)



Moygaddy, Co Meath FRA Flood Zones



**Moygaddy, Co Meath FRA
Flood Zone A with Climate
Change**

JBA
JBA Engineering

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The logo for JBA consulting is a blue rounded rectangle with the text "JBA" in large white bold letters and "consulting" in smaller white lowercase letters below it.

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OHSAS 18001:2007



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APPENDIX 8-2

LAB REPORTS

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McCarthy Keville & O'Sullivan Ltd
2nd Floor
H91VW84
Tuam Road
Galway
Ireland



Attention : David Naughton
Date : 23rd August, 2021
Your reference : 210414
Our reference : Test Report 21/12143 Batch 1
Location : Moygaddy Mixed Use Scheme
Date samples received : 10th August, 2021
Status : Final Report
Issue : 1

Three samples were received for analysis on 10th August, 2021 of which three were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Hayley Prowse
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 210414
Location: Moygaddy Mixed Use Scheme
Contact: David Naughton
EMT Job No: 21/12143

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-3	4-6	7-9								Please see attached notes for all abbreviations and acronyms		
Sample ID	SW-1	SW-2	SW-3										
Depth													
COC No / mls c													
Containers	H P BOD	H P BOD	H P BOD										
Sample Date	05/08/2021	05/08/2021	05/08/2021										
Sample Type	Surface Water	Surface Water	Surface Water										
Batch Number	1	1	1										
Date of Receipt	10/08/2021	10/08/2021	10/08/2021								LOD/LOR	Units	Method No.
Dissolved Phosphorus #	330	48	87								<5	ug/l	TM30/PM14
Chloride #	27.1	24.4	27.6								<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	2.1	3.8	3.1								<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	0.03	<0.02	0.03								<0.02	mg/l	TM38/PM0
Ortho Phosphate as P #	0.20	<0.03	0.04								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.12	0.14	0.08								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.13	0.15	0.08								<0.03	mg/l	TM38/PM0
BOD (Settled) #	<1	<1	<1								<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	642	652	645								<2	uS/cm	TM76/PM0
pH #	7.97	8.25	8.30								<0.01	pH units	TM73/PM0
Total Nitrogen	3.5	1.9	1.7								<0.5	mg/l	TM38/PM125/PM0
Total Suspended Solids #	112	<10	<10								<10	mg/l	TM37/PM0

Notification of Deviating Samples

Matrix : Liquid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
21/12143	1	SW-1		1-3	BOD	Sample holding time exceeded
21/12143	1	SW-2		4-6	BOD	Sample holding time exceeded
21/12143	1	SW-3		7-9	BOD	Sample holding time exceeded

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/12143

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory.

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 21/12143

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/IS ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2008: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM37	Modified Method 130.1, USEPA 100.2 (1994), LINTA2000 and AFM 3MIL-VVV 2540D:1999 22nd Edition; VSS: USEPA 1684 (Jan 2001), USEPA 160.4 (1971) and SMEWW 2540E:1999 22nd Edition. Gravimetric determination of Total Suspended Solids (TSS) and Volatile Suspended Solids (VSS). Sample is filtered through a 1.5um pore size glass fibre filter and the resulting residue is dried and weighed at 105°C for TSS and 600°C for VSS.	PM0	No preparation is required.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7198A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM0	No preparation is required.	Yes			
TM39/TM125	Total Nitrogen/Organic Nitrogen by calculation	PM0	No preparation is required.				
TM58	APHA SMEWW 5210B:1999 22nd Edition. Comparable with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as am	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			

McCarthy Keville & O'Sullivan Ltd
2nd Floor
H91VW84
Tuam Road
Galway
Ireland



Attention : David Naughton
Date : 21st December, 2021
Your reference : 21041
Our reference : Test Report 21/19583 Batch 1
Location : Moygaddy Mixed Use Scheme
Date samples received : 9th December, 2021
Status : Final Report
Issue : 1

Three samples were received for analysis on 9th December, 2021 of which three were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
 Reference: 21041
 Location: Moygaddy Mixed Use Scheme
 Contact: David Naughton
 EMT Job No: 21/19583

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-3	4-6	7-9								Please see attached notes for all abbreviations and acronyms		
Sample ID	SW1	SW2	SW3										
Depth													
COC No / misc													
Containers	H P BOD	H P BOD	H P BOD										
Sample Date	08/12/2021	08/12/2021	08/12/2021										
Sample Type	Surface Water	Surface Water	Surface Water										
Batch Number	1	1	1								LOD/LOR	Units	Method No.
Date of Receipt	09/12/2021	09/12/2021	09/12/2021										
Total Phosphorus	702	400	355								<5	ug/l	TM30/PM14
Chloride *	20.4	33.9	30.6								<0.3	mg/l	TM38/PM0
Nitrate as NO ₃ *	17.8	16.2	15.7								<0.2	mg/l	TM38/PM0
Nitrite as NO ₂ *	0.08	0.04	0.05								<0.02	mg/l	TM38/PM0
OrthoPhosphate as PO ₄	0.85	0.30	0.38								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH ₃ *	0.39	0.12	0.17								<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH ₄ *	0.41	0.13	0.18								<0.03	mg/l	TM38/PM0
BOD (Settled) *	5	3	3								<1	mg/l	TM58/PM0
Electrical Conductivity @25C *	400	534	570								<2	uS/cm	TM76/PM0
pH *	7.82	8.00	8.05								<0.01	pH units	TM73/PM0
Total Suspended Solids *	122	108	75								<10	mg/l	TM37/PM0

Notification of Deviating Samples

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 21041
Location: Moygaddy Mixed Use Scheme
Contact: David Naughton

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 21/19583						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/19583

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to pe. clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 21/19583

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009; SOILS by Modified USEPA Method 3050B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM37	Modified Method 1331 USEPA (1994), LINDA (2000) and EPA 821-A-93-010-99 2540D:1999 22nd Edition; VSS: USEPA 1684 (Jan 2001), USEPA 160.4 (1971) and SMEWW 2540D:1999 22nd Edition. Gravimetric determination of Total Suspended Solids (TSS) and Volatile Suspended Solids (VSS). Sample is filtered through a 1.5um pore size glass fibre filter and the resulting residue is dried and weighed at 105°C for TSS and 600°C for VSS	PM0	No preparation is required.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes			
TM58	APHA SMEWW 5210B:1999 22nd Edition. Compatible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as am	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			



APPENDIX 8-3

**WATER FRAMEWORK
DIRECTIVE ASSESSMENT**

**WATER FRAMEWORK DIRECTIVE ASSESSMENT
PROPOSED MOYGADDY MIXED USE DEVELOPMENT, CO. MEATH**

FINAL REPORT

Prepared for:
SKY CASTLE LTD

Prepared by:
HYDRO-ENVIRONMENTAL SERVICES

DOCUMENT INFORMATION

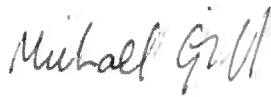
Document Title:	WATER FRAMEWORK DIRECTIVE ASSESSMENT PROPOSED MIXED USE DEVELOPMENT, MOYGADDY, MAYNOOTH, CO. KILDARE
Issue Date:	30 TH AUGUST 2022
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Author:	MICHAEL GILL CONOR MCGETTIGAN JENNY LAW
Signed:	 Michael Gill B.A., B.A.I., M.Sc., MIEI Managing Director – Hydro-Environmental Services
Disclaimer: <i>This report has been prepared by HES with all reasonable skill, care and diligence within the terms of the contract with the client, incorporating our terms and conditions and taking account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.</i>	

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1. INTRODUCTION

1.1 BACKGROUND

Hydro-Environmental Services (HES) were commissioned by MKO to complete a Water Framework Directive (WFD) Compliance Assessment as an accompanying document for a proposed 'Mixed Use Development' at Moygaddy, Co. Meath.

The 'Proposed Development' comprises a number of components:

- **Site A** – Strategic Employment Zone, which consists of three office buildings, public road widening, and road realignment works along the existing R157 Regional Road and L22143 Local Road, the delivery of a new public access road under the Maynooth Outer Orbital Road (MOOR) scheme, internal access road and associated car parking;
- **Site B** – Healthcare Facilities which includes a nursing home and primary care centre as well public road widening and road realignment works along the existing R157 Regional Road, internal access road and associated car parking, and all associated infrastructure;
- **Site C** – Strategic Housing Development which consists of 360 no. residential homes, a creche facility, scout den, public park and internal access roads, approximately 500m of distributor road, pedestrian and cycle improvements, 2 no. cycle bridges, shared communal and private open space and all associated site development works.
- **Maynooth Outer Orbital Road (MOOR)** which consists of approximately 1.7km of new distributor road, a single span bridge, pedestrian and cycle improvement measures, a pedestrian & cycle bridge, upgrade works to existing road network and all associated utilities.
- **The Kildare Bridge** planning application includes road upgrade works to the existing R157 Regional Road, a proposed pedestrian / cycle bridge adjacent to the existing Kildare Bridge, as well as a proposed wastewater connection to the Maynooth Municipal Wastewater Pumping Station to the southeast of the Proposed Development in County Kildare.
- **The Moyglare Bridge** planning application includes for the provision of an integral single span bridge over the Rye Water River with associated flood plain works and embankments, as well as services and utilities connections.

The 'Proposed Development' consists of six planning applications under the definition of one 'Proposed Development' due to the proximity, timeline and links between the applications. Three planning applications will be submitted to Meath County Council (MCC) (Site A, Site B and MOOR). One planning application will be submitted to An Bord Pleanála (Site C: SHD) as the competent authority. Two planning applications will be submitted to Kildare County Council (KCC) as the proposed development is located on the northern environs of Maynooth town, Co. Kildare, and works are required to connect the Proposed Development to the road network and services and utility infrastructure within Co. Kildare.

The purpose of this WFD assessment is to determine whether specific components or activities associated with the proposed development at Moygaddy, will compromise WFD objectives or result in a deterioration of the status of any waterbodies in the vicinity or downstream of the site. This assessment will provide details of proposed mitigation measures if there is a perceived risk deterioration in the status of any waterbody.

1.2 STATEMENT OF AUTHORITY

Hydro-Environmental Services (HES) are a specialist hydrological, hydrogeological and environmental practice that delivers a range of water and environmental management consultancy services to the private and public sectors across Ireland and Northern Ireland. HES was established in 2005, and our office is located in Dungarvan, County Waterford. We routinely complete impact assessments for hydrology and hydrogeology for a large variety of project types.

This WFD assessment was prepared by Michael Gill, Conor McGettigan and Jenny Law.

Michael Gill (BA, BAI, Dip Geol., MSc, MIEI) is an Environmental Engineer and Hydrogeologist with over 18 years' environmental consultancy experience in Ireland. Michael has completed numerous hydrological and hydrogeological impact assessments for a variety of development types across Ireland. He has substantial experience in surface water drainage design and SUDs design and surface water/groundwater interactions.

Conor McGettigan (BSc, MSc) is a junior Environmental Scientist, holding an M.Sc. in Applied Environmental Science (2020) from University College Dublin. Conor has also completed a B.Sc. in Geology (2016) from University College Dublin. In recent times Conor has assisted in the preparation of hydrological and hydrogeological impact assessments for a variety of developments.

Jenny Law (BSc) is a master's student in Applied Environmental Geoscience. Jenny holds a BSc in Earth and Ocean Science. In recent times Jenny has assisted in the preparation of hydrological and hydrogeological impact assessments for a variety of developments.

1.3 WATER FRAMEWORK DIRECTIVE

The EU Water Framework Directive (2000/60/EC), as amended by Directives 2008/105/EC, 2013/39/EU and 2014/101/EU, was established to ensure the protection of the water environment. The Directive was transposed in Ireland by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2002).

The Directive requires that all member states protect and improve water quality in all waters, with the aim of achieving good ecological status by 2027 at the latest WFD aims. Any new development must ensure that this fundamental requirement of the Directive is not compromised.

The WFD is implemented through the River Basin Management Plans (RBMP) which comprises a six-yearly cycle of planning, action and review. RBMPs include identifying river basin districts, water bodies, protected areas and any pressures or risks, monitoring and setting environmental objectives. In Ireland the first RBMP covered the period from 2010 to 2015 with the second cycle plan covering the period from 2018 to 2021.

The River Basin Management Plan (2018 - 2021) objectives, which have been integrated into the design of the proposed development, include:

- Ensure full compliance with relevant EU legislation;
- Prevent deterioration and maintain a 'high' status where it already exists;
- Protect, enhance and restore all waters with aim to achieve at least good status by 2021;
- Ensure waters in protected areas meet requirements; and,
- Implement targeted actions and pilot schemes in focused sub-catchments aimed at (1) targeting water bodies close to meeting their objectives and (2) addressing more complex issues that will build knowledge for the third cycle.

Our understanding of these objectives is that surface waters, regardless of whether they have 'Poor' or 'High' status, should be treated the same in terms of the level of protection and mitigation measures employed, i.e. there should be no negative change in status at all.

2. WATERBODY IDENTIFICATION CLASSIFICATION

2.1 INTRODUCTION

This section identifies those surface water and groundwater bodies with potential to be affected by the proposed development and reviews any available WFD information.

2.2 SURFACE WATERBODY IDENTIFICATION

Regionally, the site is located in the Liffey and Dublin Bay surface water catchment within Hydrometric Area 09 of the Eastern River Basin District (www.epa.ie). Locally the site is located predominantly within the Liffey_SC_080 and the Rye Water_030 sub-basin, whilst the very eastern part of the site is located within the Rye water_040 sub-basin. The south-eastern portion of the site at Kildare Bridge, is situated within the Lyreen_SC_010 sub-catchment and the Lyreen_020 WFD river sub-basin.

Sites A, B and C are bounded to the south by the Rye Water River, referred to by the EPA as the Rye Water_030 (IE_EA_09R010400). The Rye Water River travels through the south of the MOOR at two points, one located to the west and one located to the east. The Blackhall Little stream is a tributary of the Rye water, flowing through the centre of the site from north to south. The Blackhall Little stream also crosses the MOOR at two locations, at the northeast and centre of the site. The Rye Water then flows ~8km to the southeast towards Leixlip, where it then feeds into the River Liffey (IE_EA_09L011900). The River Liffey continues east for approximately 18km before discharging into the Liffey Estuary Upper transitional waterbody, which in turn discharges into the Liffey Estuary Lower transitional waterbody and the Dublin Bay coastal waterbody thereafter.

Figure A below highlights those surface waterbodies located downstream of the proposed development at Moygaddy.

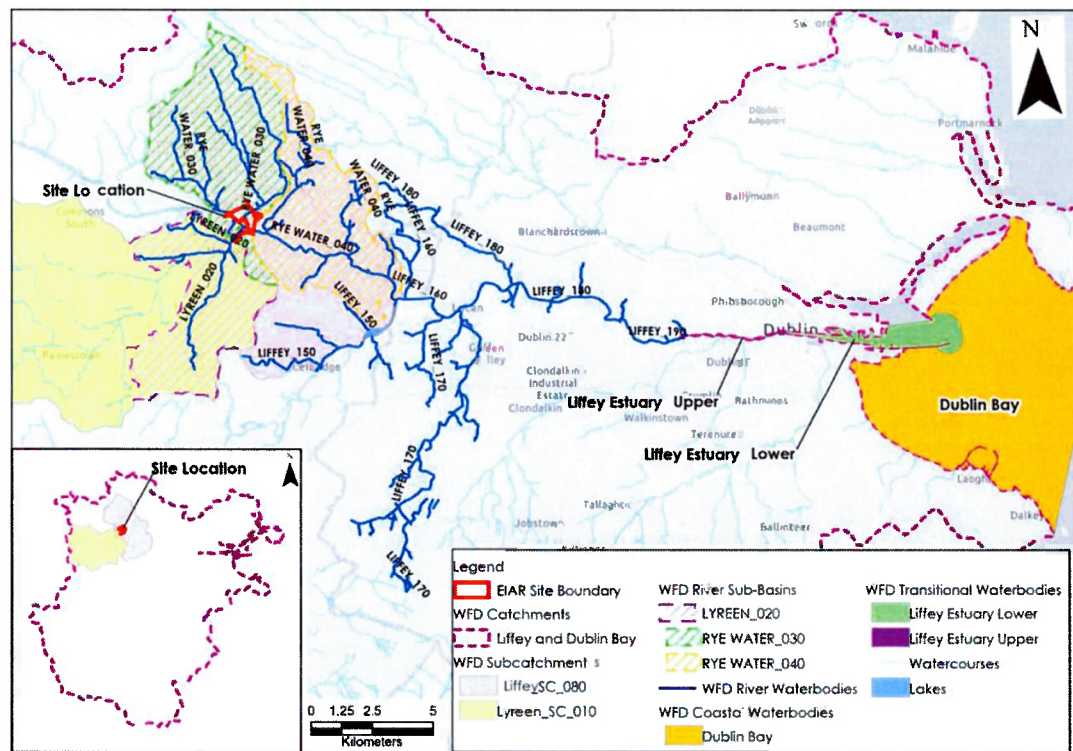


Figure A: Hydrological Setting and Downstream Surface Water Bodies

2.3 SURFACE WATER BODY CLASSIFICATION

A summary of the WFD status and risk result for Surface Water Bodies (SWBs) downstream of the proposed development are shown in **Table A**.

The Rye Water_030 river waterbody (IE_EA_09R010400) that bounds Sites A, B and C to the south and includes the Blackhall Little stream that flows through the centre of the proposed development achieved "Moderate" status in the latest WFD Cycle (2013-2018) (www.catchments.ie). Downstream of the R157 the Rye Water_040 waterbody (IE_EA_09R010600) is of "Poor" status. The Rye Water_040 discharges into the Liffey_150 waterbody (IE_EA_09L011900) at Leixlip which has achieved 'Good' status in the latest round (2013-2018). Downstream the Liffey_160 waterbody (IE_EA_09L012040) achieved 'poor' status, whilst the lower reach of the River Liffey, including the Liffey_170 (IE_EA_09L012100), Liffey_180 (IE_EA_09L012350) and the Liffey_190 (IE_EA_09L012360) waterbodies all achieved a 'Moderate' status in the latest WFD Cycle (2013-2018). Both the Liffey Estuary Upper (IE_EA_090_0400) and Liffey Estuary Lower transitional waterbodies achieved 'Good' status, and so too did the Dublin Bay coastal waterbody (IE_EA_090_0000) under the WFD 2013-2018. This status is based on the ecological, chemical and quantitative status of the SWB.

The 2 no. river waterbodies immediately downstream of the proposed development have been deemed to be "at risk" of failing to meet their WFD objectives. The Rye Water_030 in the vicinity of the site is listed as being under significant pressure from agriculture activities and domestic wastewater. Agriculture, urban runoff and domestic wastewater have been identified as significant pressures on the Rye Water_040 waterbody. The risk status for the downstream Liffey_150, Liffey_160 river waterbodies and the Liffey Estuary Upper and Liffey Estuary Lower transitional waterbodies are under review. The Liffey_150 is listed on (www.catchments.ie) as being under significant pressure from urban run-off, whilst the Liffey_160 is listed as being under significant pressure from agriculture. Urban wastewater is identified as a significant pressure for the Liffey Estuary Upper transitional waterbody. The Liffey_170, Liffey_180 and the Liffey_190 river waterbodies are 'at risk' of failing to meet their WFD objectives. These lower reaches of the Liffey River are listed as being under significant pressures from urban wastewater and urban run-off. The Dublin Bay coastal waterbody is not at risk of failing to meet its WFD objectives.

SWB status for the 2013-2018 WFD cycle are shown on **Figure B**.

Table A: Summary WFD Information for Surface Water Bodies

SWB	Overall Status	Risk Status	Pressures
Rye Water_030	Moderate	At Risk	Agriculture and domestic wastewater
Rye Water_040	Poor	At Risk	Agriculture urban runoff and domestic wastewater
Liffey_150	Good	Under Review	Urban Run-off
Liffey_160	Poor	Under Review	Agriculture
Liffey_170	Moderate	At Risk	Urban Wastewater and Urban Run-off
Liffey_180	Moderate	At Risk	Urban Wastewater and Urban Run-off
Liffey_190	Moderate	At Risk	Urban Wastewater and Urban Run-off
Liffey Estuary Upper	Good	Review	Urban Wastewater
Liffey Estuary Lower	Good	Review	-
Dublin Bay	Good	Not at Risk	-

2.4 GROUNDWATER BODY IDENTIFICATION

According to data from the GSI database the proposed development is underlain by the Dinantian Upper Impure Limestones of the Lucan Formation and are classified by the GSI as being a Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones. The site is underlain by the Dublin Groundwater Body (GWB) (IE_EA_G_008) which is characterised by poorly productive bedrock.

2.5 GROUNDWATER BODY CLASSIFICATION

The site is located within the Dublin Groundwater Body (GWB) (IE_EA_G_008). This GWB achieved "Good" status under the WFD 2013-2018 review cycle (**Table B**). This status is based on the quantitative and chemical status of the GWB.

The risk status of the Dublin Groundwater Body (GWB) (IE_EA_G_008) is currently "under review". No significant pressures have been identified to be impacting on this GWB.

Table B: Summary WFD Information for Groundwater Bodies

GWB	Overall Status	Risk Status	Pressures
Dublin	Good	Under Review	-

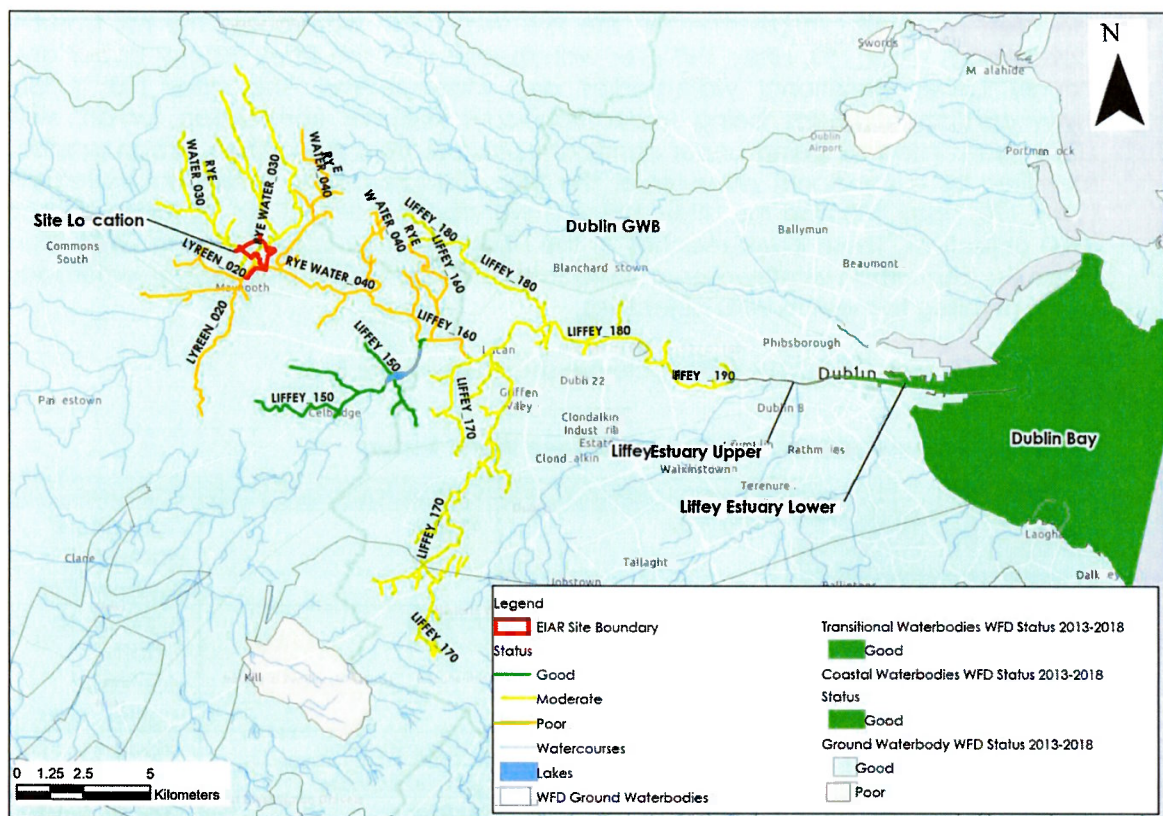


Figure B: WFD Surface Waterbody Status (2013-2018)

3. WFD SCREENING

As discussed in **Section 2**, there are a total of 10 no. surface water bodies that are located in the vicinity or downstream of the proposed development site. In addition, 1 no. groundwater body underlies the proposed development site.

3.1 SURFACE WATER BODIES

As shown in **Figure A** above, there are 7 no. river water bodies, 2 no. transitional waterbody and 1 no. coastal waterbody located in the vicinity or downstream of the proposed development.

With consideration for the construction and operational phases of the proposed development, it is considered that the Rye water _030 and Rye Water _040 that are in the vicinity and downstream of the site are carried through into the WFD Impact Assessment. All sections of the downstream Liffey River (Liffey_150, Liffey_160, Liffey_170, Liffey_180 and Liffey_190) have been screened out due to their distal location from the proposed development site and the large volumes of water within these surface waterbodies. The downstream transitional waterbodies including the Liffey Estuary Upper, Liffey Estuary Lower and the downstream coastal waterbody of Dublin Bay, have been screened out also due to their distal location from the proposed development site, the large volumes of water within these surface waterbodies and the saline nature of these waters.

3.2 GROUNDWATER BODIES

The underlying Dublin groundwater body will be carried through to the WFD Impact Assessment due to its proximal location directly underlying the proposed development site.

3.3 WFD SCREENING SUMMARY

A summary of WFD Screening discussed above is shown in **Table C**.

Table C: Screening of WFD water bodies located within the study area

Type	WFD Classification	Waterbody Name/ID	Inclusion in Assessment	Justification
Surface Waterbody	River	Rye Water_030	Yes	The proposed development is in the vicinity and downstream of the Rye Water_030 River. An assessment is required to consider potential impacts of the proposed development to this SWB.
	River	Rye Water_040	Yes	The proposed development is in the vicinity and downstream of the Rye Water_040 River. An assessment is required to consider potential impacts of the proposed development to this SWB.
	River	Liffey_150	No	The Liffey River waterbody has been screened out due to its distal location from the proposed development site and the large volume of water within the river.
	River	Liffey_160	No	The Liffey River waterbody has been screened out due to its distal location from the proposed development site and the large volume of water within the river.
	River	Liffey_170	No	The Liffey River waterbody has been

				screened out due to its distal location from the proposed development site and the large volume of water within the river.
	River	Liffey_180	No	The Liffey River waterbody has been screened out due to its distal location from the proposed development site and the large volume of water within the river.
	River	Liffey_190	No	The Liffey River waterbody has been screened out due to its distal location from the proposed development site and the large volume of water within the river.
	Transitional	Liffey Estuary Upper	No	The Liffey Estuary Upper transitional waterbody has been screened out due to its distal location from the proposed development site, the large volume of water within the estuary and the saline nature of these waters.
	Transitional	Liffey Estuary Lower	No	The Liffey Estuary Lower transitional waterbody has been screened out due to its distal location from the proposed development site, the large volume of water within the estuary and the saline nature of these waters.
	Coastal	Dublin Bay	No	The Dublin Bay coastal waterbody has been screened out due to its distal location from the proposed development site, the large volumes of water within the surface waterbody and the saline nature of its water.
Groundwater Body	Groundwater	Dublin	Yes	The proposed development site immediately overlies the groundwater body. An assessment is required to consider potential impacts of the proposed development to this GWB.

4. WFD COMPLIANCE ASSESSMENT

4.1 PROPOSED DEVELOPMENT

The proposed development comprises a strategic employment zone (Site A), healthcare facilities (Site B), a strategic housing development (Site C), Maynooth Outer Orbital Road (MOOR) which consists of approximately 1.7km of new distributor road along with upgrade works, a standalone pedestrian and cycle bridge adjacent to the existing Kildare Bridge and the provision of an integral single span bridge (Moyglare Bridge) over the Rye Water River.

Aspects of each of the components of the proposed development include:

The Strategic Employment Zone (**Site A**) will consist of:

- The proposed development comprises 3 no. office blocks and all associated site development works
- The development includes a surface car park which includes 323 no. car parking spaces and 320 no. bicycle car parking spaces.
- Undertaking of road upgrade works on the R157 Dunboyne Road and the construction of a section of the Maynooth Outer Orbital Route and provision of associated pedestrian and cycle infrastructure.
- Vehicular access to the site will be provided via the R157 Dunboyne Road.
- Provision of a new pedestrian & cycle bridge structure at the River Rye Water adjacent to the existing Kildare Bridge.
- Provision of roof mounted solar PV panels on Office Blocks A, B & C.
- Provision of 3 no. ESB Kiosks.
- Provision of bin stores, bike stands, landscaping, boundary treatments and public lighting and all other site development works and services ancillary to the proposed development.

The Healthcare Facilities (**Site B**) will consist of:

- Construction of a new two-storey Nursing Home of 156 no. bedrooms with a Gross Floor Area (GFA) of 8,576m², including vehicular pick up/drop-off area and service road;
- Construction of a new three-storey Primary Care Centre (PCC) with a Gross Floor Area (GFA) of 3,049m²;
- The development includes a shared surface car park providing 161 no. car parking spaces.
- Provision of communal (semi-private) and public open space
- Provision of hard and soft landscaping including amenity equipment, fencing and gates.
- Provision of substation and public lighting.
- Proposed road improvement and realignment works along the R157 Dunboyne Road

The Strategic Housing Development SHD (**Site C**) will consist of:

- Construction of 360 no. residential homes comprising:
 - 196 no houses (including 19 no. 2 beds, 156 no. 3 beds and 21 no. 4 beds).
 - 102 no. duplexes (including 51 no. 1 beds and 51 no. 2 beds) set out in 6 no. blocks.
 - 62 no. apartments (including 26 no. 1 beds and 36 no. 2 beds) set out in 2 no. blocks.
- Provision of a public park and playground with associated 42 no. car parking spaces adjacent to Moygaddy Castle Towerhouse and pedestrian and cyclist links along the Blackhall Little and Rye Water River. The overall public open space (including the High Amenity Lands) equates to 7.98 hectares.

- Provision of private open spaces in the form of balconies and terraces is provided to all individual apartments and duplexes to all elevations.
- Development of a two-storey creche facility (514 sqm), outdoor play area and associated parking of 29 no. spaces.
- Provision of a single storey Scout Den facility, including a hall, kitchen, meeting room and ancillary facilities (220sqm) and associated parking of 6 no. spaces.
- Provision of 500m of distributor road comprising of 7.0m carriageway with turning lane where required, footpaths, cycle tracks and grass verges. All associated utilities and public lighting including storm water drainage with SuDS treatment and attenuation.
- Proposed road improvement and realignment works of the existing L6219 local road
- Provision of 3 no. vehicular and pedestrian accesses from the L6219 local road and an additional vehicular and pedestrian access from the R157 to the Childcare and Scout Den facilities.
- A total of 667 no. car parking spaces are provided on site located at surface level. The car parking provision includes 10 no. Electric Vehicle charging and Universally Accessible spaces allocated for the Apartment & Duplex units. All Houses will be constructed with provision for EV Charging.
- Provision of site landscaping, public lighting, bin stores, 3 no. ESB unit substations, site services and all associated site development works.

The planning application for the Maynooth Outer Orbital Road (**MOOR**) will consist of:

- Provision of approximately 1,700m of new distributor road (MOOR Arc) comprising of 7.0m carriageway with turning lane where required, footpaths, cycle tracks and grass verges. All associated utilities and public lighting including storm water drainage with SuDS treatment and attenuation.
- Proposed road improvement and realignment works including:
 - realignment of a section of the existing L6219 local road, which will entail the demolition of an existing section of the road which extends to circa 2,500 sqm.
 - Provision of pedestrian and cycle improvement measures along the L6219 and L22143 which abuts the boundary of Moygaddy House which is a Protected Structure (RPS ref 91558).
 - Provision of pedestrian and cycle improvement measures along the R157 which abuts the Carton Demense Wall which is a Protected Structure (RPS Ref 91556).
 - Realignment of a section of the existing L22143 local road and R157, which will entail the demolition of an existing section of the road which extends to circa 3,200 sqm.
 - Provision of a new signalised junction at the realigned junction between the L22143 and R157.
 - Provision of a new signalised junction between the L2214 local road and the MOOR with right-turn lanes on approaches.
 - Reconfiguration of the L2214 section within the MOOR arc to a one-way from north to south with right-turn lanes, where applicable.
 - Reconfiguration of the northbound lane of the L2214 within the arc to a shared facility for use by pedestrians and cyclists.
 - Addition of chicanes on the L6219 and L22143 local road to reduce traffic flow and encourage utilisation of the MOOR.
- Provision of site landscaping, public lighting, site services and all associated site development works.

The planning application for the **Kildare Bridge** will consist of:

- Provision of a new bridge structure comprising the following:
 - a pedestrian and cycle bridge structure to be erected adjacent to the upstream/western side of the existing Kildare Bridge, with a 2m clearance, with the infrastructure tying into new infrastructure in Co. Meath.
 - This bridge will be a standalone, independent structure that will also support new water main assets

- New wastewater rising mains to be installed underground adjacent the bridge structure, to the west.
- New walkways and cycle track will tie-in with new infrastructure to be constructed by Cairn Homes and their Agents in County Kildare.
- Provision of site landscaping, public lighting, site services and all associated site development works.

The planning application for the **Moyglare Bridge** will consist of:

- Provision of approximately 200m of new portion of distributor road comprising of 7.0m carriageway with footpaths, cycle tracks and grass verges. All associated utilities and public lighting including storm water drainage with SuDS treatment and attenuation. This new road section with pedestrian and cycle infrastructure will tie in with existing infrastructure which provides access to the Maynooth Community College and Moyglare Hall Estate.
- Provision of a new bridge structure comprising the following:
 - an integral 50m single span bridge at Moyglare Hall over the River Rye Water to connect with existing road infrastructure in County Kildare and associated floodplain works and embankments.
 - The bridge will include pedestrian and cycle facilities
 - Extension of the water main assets to serve new developments in Maynooth Environs
- Provision of site landscaping, public lighting, site services and all associated site development works.

It is proposed that surface water within Sites A, B and C (from roads, roofs and hardstanding areas) will drain via gravity to hydrocarbon interceptors, and infiltration area/attenuation storage areas. The main Site A, Site B and Site C attenuation systems will comprise underground poly-tunnel systems, to be located within the Proposed Development's green spaces in Site A and within the shared car park area of Site B and within the public open spaces in Site C with adequate drainage to maintain functionality. Various other SuDS (sustainable drainage systems) have been incorporated into the surface water drainage design including permeable pavements, swales, hydrocarbon interceptors, rainwater harvesting systems, and downstream attenuation/infiltration.

A proposed new connection to one of the existing watermains local to the site will be made for the Proposed Development. There is a 200mm watermain just south from the Kildare bridge, south of the Proposed Development. An extension from the existing 200mm watermain to be provided along the MOOR road, to the connection point at the site boundaries of Site A & Site B. It is proposed to provide an extension to the existing 200mm watermain at Moyglare Close, to serve Site C. The Proposed Development will be subject to a New Connection Agreement with Irish Water, with all details in accordance with their requirements.

It is proposed to provide a new underground pumping station constructed to IW standards and specifications to the west of the proposed nursing home building at Site B within the Proposed Development. The Proposed Development (Both Site A to the north and Site B to the east and Site C to the west of the proposed pumping station) will drain by gravity to the Pumping Station where it will then be pumped to the existing Irish Water network along the L1013 Local Road in County Kildare, approximately 1km south of the proposed pumping station. The foul sewers are sealed and there will be no discharge of wastewater to ground within the Proposed Development. Wastewater will be pumped from the Proposed Development to the Maynooth pumping station, and onwards from Maynooth pumping station to the Leixlip Wastewater Treatment Plant.

The proposed development works include works in close proximity to waterbodies. There are a number of potential adverse effects to both surface and groundwater.

The primary risks of degradation of surface water bodies include:

- Changes in surface runoff flow volumes and flow patterns;
- Entrainment of suspended solids in surface waters; and,
- Chemical pollution of surface waters by oil and or fuels.

The primary risks of degradation of groundwaters include:

- Chemical pollution of groundwaters by oils and fuels; and,
- Changes in local groundwater flow patterns.

4.2 POTENTIAL EFFECTS

4.2.1 Construction Phase (Unmitigated)

4.2.1.1 Potential Surface Water Quality Impacts from Earthworks

Construction phase activities including site levelling and excavations for building foundations, and attenuation tanks will require earthworks resulting in the removal of vegetation cover where present and excavation of soil and subsoils. The main risk will be from surface water runoff from bare soil and spoil storage areas during construction works.

These activities can result in the release of suspended solids in surface water runoff and could result in an increase in the suspended sediment load, resulting in increased turbidity. This could affect the water quality and fish stocks of downstream water bodies such as the River Rye Water.

Estimated flow volumes at the EPA gauging station on the Rye Water River at Annes BR (Station Code: 09048) and on the Rye Water at Leixlip (Station Code: 09001) highlight the increase in flow volumes downstream. The EPA estimate that 95% of flows in the Rye Water River, approximately 500m upstream from the proposed development equal or exceed 0.060m³/s while in the Rye Water at Maynooth, 95% of flows equal or exceed 0.133m³/s at Leixlip. Therefore, there is a significant increase in flow volumes from the Rye Water_030 River in the vicinity of the proposed development site to the Rye Water_040 River downstream.

These contaminants have the potential to cause a deterioration in the overall status of the Rye Water_030 and could result in the prevention of the Rye water_030 SWB from achieving 'Good' status in the future, due to its proximal location to the proposed development. Further downstream the status of the Rye Water_040 river waterbody is unlikely to be impacted even in an unmitigated scenario due to the significant increase in flow volumes between the Rye Water_030 and Rye Water_040 Rivers.

A summary of potential status change to SWBs arising from surface water quality impacts from earthworks during the construction phase of the proposed development in the unmitigated scenario are outlined in **Table D**.

Table D: Surface Water Quality Impacts during Construction Phase (Unmitigated)

SWB	WFD Code	Current Status	Assessed Potential Status Change
Rye Water_030	IE_EA_09R010400	Moderate	Poor
Rye Water_040	IE_EA_09R010600	Poor	Poor

4.2.1.2 Groundwater Quality Impacts

Accidental spillage during refuelling of construction plant with petroleum hydrocarbons is a significant pollution risk to groundwater. The accumulation of small spills of fuels and lubricants

during routine plant use can also be a pollution risk. Chemicals such as paints and detergents also pose a threat to the groundwater environment. Potential accidental wastewater discharges from temporary on-site welfare facilities have the potential to impact on groundwater quality. Runoff from concrete works can impact on surface water and groundwater quality.

These sources of contamination have the potential to impact on groundwater quality in the underlying groundwater bodies.

A summary of potential status change to the GWB arising from potential groundwater quality impacts during the construction phase of the proposed development in the unmitigated scenario are outlined in **Table E**.

Table E: Groundwater Quality Impacts during Construction Phase (Unmitigated)

GWB	WFD Code	Current Status	Assessed Change
Dublin	IE_EA_G_008	Good	Moderate

4.2.2 Operational Phase (Unmitigated)

4.2.2.1 Reduced Groundwater Flows

Without appropriate mitigation replacement of the existing greenfield surfaces with impermeable hardstanding surfaces can affect and redirect rainfall recharge to the groundwater flow system at the development site, and as a result can alter local groundwater flow patterns. This may have an adverse impact on the quantitative status of the Dublin GWB.

A summary of potential status change to GWBs arising from reduced groundwater flows during the operation stage of the proposed development in the unmitigated scenario are outlined in **Table F**.

Table F: Potential Impact on Groundwater Flows during Operational Phase (Unmitigated)

GWB	WFD Code	Current Status	Assessed Change
Dublin	IE_EA_G_008	Good	Moderate

4.2.2.2 Groundwater Quality Impacts

Surface water runoff from roads and car parking areas can potentially contain elevated levels of contaminants such as hydrocarbons and suspended solids. These could alter pH or nutrient concentrations in groundwater. The use of fertilizers (organic and inorganic, which can increase nitrate and phosphate concentrations in groundwater) and pesticides could also impact on groundwater quality. These contaminants have the potential to adversely impact local groundwater quality in the underlying aquifers.

A summary of potential status change to the Dublin GWB arising from groundwater quality impacts during the operation stage of the proposed development in the unmitigated scenario are outlined in **Table G**.

Table G: Groundwater Quality Impacts during Operational Phase (Unmitigated)

GWB	WFD Code	Current Status	Assessed Change
Dublin	IE_EA_G_008	Good	Moderate

4.2.2.3 Surface Water Quality Impacts

Surface water runoff from roads and car parking areas can potentially contain elevated levels of contaminants such as hydrocarbons and suspended solids. These could alter pH or nutrient concentrations in surface water. The use of fertilizers (organic and inorganic, which can increase nitrate and phosphate concentrations in and surface water). These contaminants have the potential to cause a deterioration in the overall status and could result in the prevention of the Rye Water_030 SWB from achieving 'Good' status in the future, due to its proximal location to the proposed development. Further downstream the status of the Rye Water_040 river waterbody is less at risk.

A summary of potential status change to SWBs arising from surface water quality impacts during the operation stage of the proposed development in the unmitigated scenario are outlined in **Table H**.

Table H: Surface Water Quality Impacts during Operational Phase (Unmitigated)

SWB	WFD Code	Current Status	Assessed Change
Rye Water_030	IE_EA_09R010400	Moderate	Poor
Rye Water_040	IE_EA_09R010600	Poor	Poor

4.3 MITIGATION MEASURES

In order to mitigate against the potential adverse effects on surface and groundwater quality, quantity and flow patterns, mitigation measures will be implemented during the construction and operational phases of the proposed development. These are outlined below.

4.3.1 Construction Phase

4.3.1.1 Mitigation Measures for Surface water Quality

Management of surface water runoff and subsequent treatment prior to release off-site will be undertaken during construction work as follows:

- Silt fencing will be constructed around the construction footprint in order to create a defined perimeter for the proposed works, leaving a natural vegetation buffer between the construction footprint (other than operational surface water outfall installations which are described below) and surface water receptors and associated riparian habitats.
- A silt fence will also be attached to solid boundary fencing where it is in place and where there is a surface water receptor. This will protect the stream from any potential sediment laden surface water run-off generated during construction activities.
- The silt fence will comprise a geotextile membrane that will be buried beneath the ground to filter any run-off that may occur as a result of the proposed works. The silt

fence will be monitored throughout the proposed works and will remain in place after the works are completed and until the exposed earth has re-vegetated.

- As construction advances there may be a requirement to collect and treat surface water within the site. This will be completed using perimeter swales at low points around the construction areas, and if required water will be pumped from the swales into sediment bags prior to overland discharge allowing water to percolate naturally to ground;
- Discharge onto ground at a distance of over 30m from nearby watercourses (Rye Water River and Blackhall Little Stream) will be via a silt bag which will filter any remaining sediment from the pumped water. The entire discharge area from silt bags will be enclosed by a perimeter of double silt fencing;
- A suitably sized detention basin or settlement area will be installed at the lowest point before discharge to ground where excess run-off must leave the site. Silt curtains or earth berms will be used to channel run-off to locations where it can be controlled. These may take the form of an open detention area or, where the need arises, a portable skip/s, or similar, where inflow passes through straw bales, gravel etc.
- Any proposed discharge area will avoid potential surface water ponding areas, and will only be located where suitable subsoils are present;
- Daily monitoring and inspections of site drainage during construction will be completed;
- No instream works will take place outside the period July 1st – September 31st in line with Inland Fisheries Ireland (2016) Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters.
- All guidance / mitigation measures proposed by the OPW or the Inland Fisheries Ireland is incorporated into the design of the proposed works.
- Surface water outfalls will be constructed in accordance with the measures described in Section 4.3.1.3 below and subject to agreement with IFI.
- Good construction practices such wheel washers and dust suppression on site roads, and regular plant maintenance, which will be implemented, will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites ('Control of Water Pollution from Construction Sites, guidance for consultants and contractors', CIRIA, 2001), which provides information on these issues. This will ensure that surface water arising during the course of construction activities will contain minimum sediment.
- Preventative measures during construction have been incorporated into the Construction and Environmental Management Plan, which will be updated upon grant of permission and to provide any additional measures required pursuant to planning conditions and agreements with the planning authority.
- There will be no direct discharge to any water body, and therefore no risk of hydraulic loading or contamination will occur;
- The MOOR stream crossing upgrade works, the Moyglare Bridge and the Kildare Bridge Works will all require a Section 50 application (Arterial Drainage Act, 1945). The river/stream crossings will be designed in accordance with OPW guidelines/requirements on applying for a Section 50 consent, where considered necessary by the designer.

Construction phase activities at Kildare Bridge include directional drilling which will require earthworks resulting in removal of vegetation cover and excavation of any minor local pockets of organic soil/subsoils, and bedrock. The main risk from directional drilling will be from frac-out, therefore the following mitigation measures will be followed:

- For directional drilling the area around the bentonite batching, pumping and recycling plant will be bunded using terram (as it will clog) and sandbags in order to contain any spillages.
- Drilling fluid returns will be contained within a sealed tank / sump to prevent migration from the works area;

- Spills of drilling fluid will be clean up immediately and stored in an adequately sized skip before been taken off-site;
- The drilling fluid/bentonite will be non-toxic and naturally biodegradable (i.e., Clear Bore Drilling Fluid or similar will be used);
- The drilling process / pressure will be constantly monitored to detect any possible leaks or breakouts into the surrounding geology or local watercourse;
- This will be gauged by observation and by monitoring the pumping rates and pressures. If any signs of breakout occur then drilling will be immediately stopped;
- Any frac-out material will be contained and removed off-site;

Release of effluent from on-site wastewater systems during the construction phase has the potential to impact on groundwater and surface waters. The proposed mitigation measures relating to wastewater effluent include:

- A self-contained port-a-loo with an integrated waste holding tank will be used at the site compounds, maintained by the providing contractor, and removed from site on completion of the construction works; and,
- No wastewater will be discharged on-site during either the construction or operational phase.

4.3.1.2 Mitigation Measures to Protect Groundwater Quality

The potential pollution of groundwater during the construction phase will be mitigated by the provision of appropriate controls and working methods. These include best practice methods for storage and handling of fuels and chemicals and include:

- All plant and machinery will be serviced before being mobilised to site;
- No plant maintenance will be completed on site, any broken down plant will be removed from site to be fixed;
- Refuelling will be completed in a controlled manner using drip trays at all times;
- Mobile bowzers, tanks and drums will be stored in secure, impermeable storage areas away from open water;
- Fuel containers will be stored within a secondary containment system, e.g. bunds for static tanks or a drip tray for mobile stores;
- Containers and bunding for storage of hydrocarbons and other chemicals will have a holding capacity of 110% of the volume to be stored;
- Ancillary equipment such as hoses and pipes will be contained within the bund;
- Taps, nozzles or valves will be fitted with a lock system;
- Fuel and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage;
- Drip-trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills;
- Only designated trained operators will be authorised to refuel plant on site;
- Procedures and contingency plans will be set up to deal with emergency accidents or spills; and,
- An emergency spill kit with oil boom, absorbers etc. will be kept on-site for use in the event of an accidental spill. A specific team of staff will be trained in the use of spill containment.

Highest standards of site management will be maintained, and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the site and surrounding environment during construction. A suitably qualified individual will be given the task of overseeing the pollution prevention measures agreed for the site to ensure that they are operating safely and effectively as well as having responsibility for the implementation of Emergency Procedures for spill control measures.

The proposed mitigation measures relating to concrete include:

- No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place.
- No washing out of any plant used in concrete transport or concreting operations will be allowed on-site;
- Where possible pre-cast elements for culverts and concrete works will be used.
- Where concrete is delivered on site, only the chute will be cleaned, using the smallest volume of water practicable. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water will be undertaken at lined cement washout ponds.
- Weather forecasting will be used to plan dry days for pouring concrete.
- The pour site will be kept free of standing water and plastic covers will be ready in case of sudden rainfall event.

4.3.1.3 Mitigation Measures to Protect against Morphological Changes to Surface Water Courses & Drainage Patterns

Diversion, culverting and bridge crossing of surface watercourses can result in morphological changes, changes to drainage patterns and alteration of aquatic habitats. Construction of structures over water courses has the potential to significantly interfere with water quality and flows during the construction phase. Mitigation by design is the key factor in minimising the potential for effects on water course morphology.

The proposed mitigation measures relating to morphological changes include:

- The proposed design for water course crossings and culverts, which minimises interactions with water courses, ensures that there will be no perceptible effects on the morphology of those watercourses.
- Prior to the outset of these works, small defined works areas will be fenced off at the location of the storm water outfall (between the main construction site and both water courses). Silt fences will be attached to these fences. The silt fence will provide a solid barrier between the proposed pipelaying works and the Rye Water River and Blackhall Little Stream.
- The necessary pipelaying works will be undertaken within this defined area.
- Following the installation of the pipework and reinstatement of the ground, the small section of the silt fence that protects the Rye Water River/Blackhall Little Stream will be removed to facilitate the construction of the outfall.
- No instream works will take place outside the period July 31st – September 31st in line with Inland Fisheries Ireland (2016) Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters.
- Cofferdams will be constructed using one tonne sandbags at the edge of the Rye Water River/Blackhall Little Stream at the outfall point to create dry working areas.
- A submersible pump will be used to dewater inside the coffer dammed area and will discharge any waters to land at a location of over 30m from the rivers. The pumped waters will discharge through a silt bag.
- The bankside will be excavated and a small pre-cast concrete headwall installed (with outfall pipe included).
- The banks and channel bed will be reinstated to avoid erosion or run off of silt. Following this the dams will be removed.
- The surface water discharge point is likely to take less than one day to install. During the near stream construction work double row silt fences will be emplaced immediately down-gradient of the construction area for the

- duration of the construction phase. There will be no batching or storage of cement allowed in the vicinity of the crossing construction areas; and,
- All watercourse crossing works will require a Section 50 application (Arterial Drainage Act, 1945). The river/stream crossings will be designed in accordance with OPW guidelines/requirements on applying for a Section 50 consent, where considered necessary by the designer.

4.3.2 Operational Phase

4.3.2.1 Mitigation Measures to Protect Groundwater Flow Regimes

The alteration of local groundwater flow patterns due to the replacement of the greenfield surface with hardstand surfaces will be minimised by the incorporation of a properly designed surface drainage and gravity sewer network, and by using underground attenuation tanks for drainage management which will control discharge to the Rye Water River less than the greenfield rates.

Sites A, B & C will direct surface water from surfaced areas roads, and roofs, via gravity, infiltration area/attenuation storage, hydrocarbon interceptors and filtration drain to outfalls at the River Rye Water/Blackhall Little, just west of the Kildare Bridge and the Blackhall Little stream. The remaining areas are considered green space and will be allowed to drain naturally to ground, with negligible impact on the performance of the surface water network, and groundwater flows and therefore do not contribute to the surface water drainage networks.

Surface water attenuation will be used to control runoff from all hard surfaces in accordance with the Greater Dublin Strategic Drainage Study (GSDSDS), with these being restricted to a maximum flow rate of 5.5 l/s/ha, which is less than the calculated greenfield runoff equivalent. Attenuation Storage will be provided at strategic locations, in the form of unlined proprietary poly-tunnel storage units (or similar approved). These poly-tunnel storage units will be underground, in proposed green-spaces for both Site A and Site C and in the car parking area for Site B, for the attenuation of rainfall runoff prior to discharge. The attenuation for the proposed MOOR are to comprise of largely enclosed vegetated ponds, and be preceded by a Class 1 bypass fuel separator.

Attenuation Storage will temporarily store excessive surface water, due to the restricted flow rates during rainfall events up to, and including, the design 1% AEP with a 20% additional allowance for climate change. This will allow for the limiting discharge rates to less than greenfield run off rates at the Proposed Development outfall.

Discharge rates at the proposed surface outfalls, that serve Sites A, B and C are to be restricted by using a flow control device, in a chamber upstream of the outfalls, such as Hydro-Brake Optimum Vortex Flow control unit, or similar approved by Meath and Kildare County Councils, downstream of the proposed attenuation systems.

It is proposed that surface water run off on the MOOR is to be captured by adequately spaced trapped road gullies, which connect to a main carrier drain under the road. The rainfall runoff on the aligning footpath and cycle track shall be intercepted by the dividing tree-lined grass verge, with excess runoff only being collected by the road's gully network.

Surface water run off on the Kildare Bridge and the Moyglare Bridge are to be captured by the proposed drainage features proposed as part of the MOOR.

The proposed surface water network is to be split into 4 no. catchments, in order to optimise the network based on the natural topography of the site.

A series of best practice SuDs drainage design controls have been included in the site drainage design to ensure there is no perceptible impact on groundwater flows. These include rainwater harvesting at Sites A and C, Permeable paving and road gullies.

4.3.2.2 Mitigation Measures to Protect Groundwater Quality

Potential emissions to ground and / or surface water include storm water run-off and wastewater.

In relation to storm water run-off, the surface water drainage system will consist of a gravity sewer network that will convey runoff from the roofs and paved areas of the development to outfall manholes, which will discharge at controlled flow rates to the Rye Water River/Blackhall Little Stream. Discharge will be less than the greenfield equivalent runoff rate. Temporary underground attenuation will also be provided at separate locations in the form of underground cellular storage units. Silt traps will be provided for upstream of the attenuation tanks. Surface water will pass through oil interceptors prior to discharging from the site.

Wastewater from the development will discharge to the proposed onsite underground wastewater pumping station, which will ultimately link up to the existing Maynooth town wastewater network prior to discharging to Leixlip Wastewater Treatment Plant. The wastewater treatment plant is regulated and operates under an EPA licence which controls emissions to acceptable levels.

Rainfall allowed to percolate to ground and/or flow via subsurface flow to the Rye Water River/Blackhall Little Stream will be within the green/ landscaped areas of Site A and so there is no significant source of pollution related to these areas.

These standard drainage design controls will ensure the development will not give rise to any significant surface water or groundwater quality impacts at or downstream of the site.

4.3.2.3 Mitigation Measures to Protect Surface Water Quality

Water quality of the surface water, discharging from site, is to be improved with the following provisions:

- Permeable Paving in all private driveways;
- Intensive landscaping, where practical;
- Trapped road gullies on all road carriageways, to trap silt and gross pollutants;
- Traditional gravity pipe and manhole network will be provided, to convey the collected rainfall runoff as far as the development's outfall. Manholes are provided for maintenance access at branched connections, change in pipe size and gradient, and at intervals no greater than 90m distance.
- Silt traps to be provided on manholes immediately upstream of attenuation systems, as a further preventative measure to trap silt and other gross pollutants;
- Surface water attenuation storage in the form of poly-tunnel installation at both Site A and Site C (green spaces) and Site B (car parking area);
- A Class 1 Bypass Fuel/Oil Separator is to be provided as an additional and final mitigation measure, prior to surface water discharge from the Proposed Development sites.

These standard drainage design controls will ensure the development will not give rise to any significant surface water quantity impacts or increased flood risk downstream of the site.

4.3.3 Potential Effects with the Implementation of Mitigation

In all instances, the mitigation measures described in **Section 4.3** are sufficient to meet the WFD Objectives. The assessment of WFD elements for the WFD waterbodies is summarised in **Table I** below.

Table I: Summary of WFD Status for Unmitigated and Mitigated Scenarios

WFD Element	WFD Code	Current Status	Assessed Status – Unmitigated	Assessed Status – with Mitigation Measures
Rye Water_030 SWB	IE_EA_09R010400	Moderate	Poor	Moderate
Rye Water_040 SWB	IE_EA_09R010600	Poor	Poor	Poor
Dublin GWB	IE_EA_G_008	Good	Moderate	Good

5. SUMMARY AND CONCLUSION

5.1 SUMMARY

WFD status for SWBs (Surface Water Bodies) and GWB (Groundwater Body) hydraulically linked to the proposed development site are defined in **Section 2** above.

The surface water connections from the proposed development site to the Rye Water River/Blackhall Little Stream could transfer poor quality surface water that may affect its WFD status. However, as described in **Section 4.2.1.1**, flow volumes in the Rye Water_040 at Louisa Bridge are significantly greater than those recorded in the Rye Water_030 River upstream from the proposed development.

Nevertheless, a series of mitigation measures, designed for the protection of surface and groundwater quality, have been proposed to ensure the protection of receiving waters during the construction and operational phase of the proposed development.

Surface water drainage measures, pollution control and other preventative measures have been incorporated into the project design to minimise significant negative or adverse impacts on water quality including the adjacent Rye Water River Blackhall Little Stream. Preventative measures during construction include fuel and concrete management and a waste management plan which have been incorporated into the Construction and Environmental Management Plan. A range of surface water control measures will also be used including silt fencing along the Rye Water River/Blackhall Little Stream and the maintenance of a set back from the watercourse during construction.

During the operational phase, the key surface water control measure is that there will be a gravity fed sewer network, water drainage system with a Hydro-Brake flow restrictor, filter drain and attenuation systems along with petrol / oil interceptors prior to outflow to the Rye Water River/Blackhall Little Stream. The proposed system will control discharge volume and discharge quality to acceptable greenfield levels. It is also proposed to retain the existing riparian zone which will act as a buffer between the development and the river/stream.

There will be no change in GWB or SWB status in the underlying GWBs or downstream SWBs resulting from the proposed development. There will be no change in quantitative (volume) or qualitative (chemical) status, and the underlying GWBs and downstream SWBs are protected from any potential deterioration.

In the event where the current status of the waterbody is Poor (i.e. Rye Water_040) the proposed development will not prevent them from achieving Good Status in the future.

As such, the proposed development will not impact upon any surface water or groundwater body as it will not cause a deterioration of the status of the body and/or it will not jeopardise the attainment of good status. Therefore, the proposed development is compliant with the requirements of the Water Framework Directive (2000/60/EC) and the Groundwater Directive (2006/118/EC).

* * * * *

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APPENDIX 9-1

PUBLIC LIGHTING REPORT

DATE: 16 August 2022
DESIGNER: Alex Naper
PROJECT No: SES 09922 Rev C
PROJECT NAME: MOOR – Maynooth Outer Orbital Road - Sky Castle Ltd



Distributor road section designed in accordance with EN13201-2:2015 Category P2 with longitudinal uniformity meeting requirements of EN13201-2:2015 Category M4.

Junction sections designed in accordance with EN13201-2:2015 Category C3.

Link road section designed in accordance with EN13201-2:2015 Category P3 with longitudinal uniformity meeting requirements of EN13201-2:2015 Category M5.

Rev B: Updated layout.

Rev C: Existing HID luminaires added

Outdoor Lighting Report

PREPARED BY: Sabre Electrical Services Ltd.
Unit 11,
Bellview Industrial Estate,
Tolka Valley Road,
Dublin 11
Phone Number: 01 8110875
Contact: Graham Sheehan
eMail: graham@sabrelighting.ie

Layout Report

General Data

Dimensions in Metres Angles in Degrees

Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 1	693864.63	739395.68	54.00	68.83	1.50	1.50
2	Grid 2	693959.70	739297.35	46.43	43.42	1.50	1.50
3	Grid 3	693909.10	739363.32	172.43	109.41	1.50	1.50
4	Grid 4	694078.43	739267.61	52.41	43.42	1.50	1.50
5	Grid 5	694125.23	739254.25	195.00	54.00	1.50	1.50
6	Grid 6	694300.72	739246.43	52.41	43.42	1.50	1.50
7	Grid 7	694463.49	739145.49	52.41	43.42	1.50	1.50
8	Grid 8	694656.84	739000.69	120.00	99.00	1.50	1.50
9	Grid 9	694343.70	739623.78	118.04	98.84	1.48	1.50
10	Grid 10	694576.26	739100.39	175.00	374.26	1.50	1.50
11	Grid 11	694437.37	739569.37	219.63	99.00	2.75	1.50
12	Grid 12	694056.27	739503.77	144.00	295.00	1.50	1.50
13	Grid 13	693911.77	739445.58	108.00	146.74	1.50	1.50
14	Grid 14	694395.42	739629.43	69.00	184.00	1.50	1.50
15	Grid 15	694318.46	739267.24	69.00	321.76	1.50	1.50
16	Grid 16	694619.02	738523.02	114.00	138.00	1.50	1.50
17	Grid 17	694628.61	738660.04	114.00	362.00	1.50	1.50
18	Grid 18	694779.13	739002.56	274.00	189.00	1.50	1.50
19	Grid 19	694333.57	739208.13	365.00	85.44	1.50	1.50
20	Grid 20	693513.62	739293.26	151.01	375.94	1.50	1.50

Luminaires

Luminaire A Data



Supplier	C U Phosco
Type	P863-128-R2E-730-W3-425-55W
Lamp(s)	730SS
Lamp Flux (klm)	7.78
File Name	P863-128-R2E-730-W3-425-55W.ies
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	463.7, 84.3, 0.0
No. in Project	28

Luminaire B Data

Supplier	C U Phosco
Type	E950-28-P4A-730-C550-14W
Lamp(s)	730N
Lamp Flux (klm)	2.08
File Name	E950-28-P4A-730-C0550-14W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	659.3, 183.1, 0.3
No. in Project	2

Luminaire C Data



Supplier	C U Phosco
Type	P862-256-R2E-730-W3-425-107W
Lamp(s)	730SS
Lamp Flux (klm)	14.97
File Name	P862-256-R2E-730-W3-425-107W.ies
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	458.4, 47.0, 0.0
No. in Project	27

Luminaire D Data



Supplier	C U Phosco
Type	P862-256-R2E-730-W3-250-64W
Lamp(s)	730SS
Lamp Flux (klm)	8.84
File Name	P862-256-R2E-730-W3-250-64W.ies
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	458.4, 47.0, 0.0
No. in Project	4

Luminaires



Luminaire E Data

Supplier	C U Phosco
Type	P862-256-R2E-730-W3-300-76W
Lamp(s)	730SS
Lamp Flux (klm)	10.70
File Name	P862-256-R2E-730-W3-300-76W.ies
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	458.4, 47.0, 0.0
No. in Project	37



Luminaire F Data

Supplier	C U Phosco
Type	P863-128-R4-730-W3-300-40W
Lamp(s)	730SS
Lamp Flux (klm)	5.53
File Name	P863-128-R4-730-W3-300-40W.ies
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	386.2, 27.2, 0.4
No. in Project	10

Luminaire J Data

Supplier	
Type	2685 SNN-1C#
Lamp(s)	1 ST 150 17500 2000 E40
LampFlux(klm)/Colour	17.50 1950 / 23
File Name	Arc 2685 SNN 1C# 1 ST 150 17500 1950 E 40.lgt
Maintenance Factor	0.75
Imax70,80,90(cd/klm)	352.0, 100.0, 5.0
No. in Project	6

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	C	693893.29	739395.63	10.00	306.00	0.00	0.00	0.50			
2	C	693884.52	739362.91	10.00	136.00	0.00	0.00	0.50			
3	C	693933.49	739398.17	10.00	128.00	0.00	0.00	0.50			
4	A	693913.80	739367.43	8.00	47.00	0.00	0.00	0.50			
5	A	693958.11	739331.85	8.00	45.00	0.00	0.00	0.50			
6	A	693982.74	739327.61	8.00	248.00	0.00	0.00	0.50			
7	A	694008.53	739306.37	8.00	69.00	0.00	0.00	0.50			
8	A	693937.48	739346.51	8.00	53.00	0.00	0.00	0.50			
9	A	694040.33	739296.89	8.00	76.00	0.00	0.00	0.50			
10	A	694074.42	739291.17	8.00	78.00	0.00	0.00	0.50			
11	A	694108.62	739295.82	8.00	263.00	0.00	0.00	0.50			
12	A	694130.13	739283.09	8.00	82.00	0.00	0.00	0.50			
13	A	694163.81	739278.39	8.00	83.00	0.00	0.00	0.50			
14	B	693980.93	739311.36	6.00	151.00	0.00	0.00	0.40			
15	B	694112.38	739277.66	6.00	169.00	0.00	0.00	0.40			
16	A	694197.52	739273.55	8.00	85.00	0.00	0.00	0.50			
17	A	694231.04	739268.57	8.00	85.00	0.00	0.00	0.50			
18	A	694263.20	739263.98	8.00	85.00	0.00	0.00	0.50			
19	A	694296.89	739259.28	8.00	77.00	0.00	0.00	0.50			
20	A	694325.52	739253.15	8.00	73.00	0.00	0.00	0.50			
21	A	694350.78	739235.67	8.00	57.00	0.00	0.00	0.50			
22	F	694336.89	739268.29	8.00	317.00	0.00	0.00	0.50			
23	A	694379.13	739215.14	8.00	64.00	0.00	0.00	0.50			
24	A	694408.87	739198.81	8.00	60.00	0.00	0.00	0.50			
25	A	694438.79	739182.31	8.00	62.00	0.00	0.00	0.50			
26	A	694468.63	739165.98	8.00	61.00	0.00	0.00	0.50			
27	A	694498.75	739159.64	8.00	250.00	0.00	0.00	0.50			
28	A	694513.73	739141.44	8.00	55.00	0.00	0.00	0.50			
29	A	694482.37	739138.84	8.00	322.00	0.00	0.00	0.50			
30	D	694702.40	739062.93	10.00	304.00	0.00	0.00	0.50			
31	E	694686.20	739062.69	10.00	260.00	0.00	0.00	0.50			
32	D	694726.91	739065.21	10.00	227.00	0.00	0.00	0.50			
33	E	694703.44	739081.44	10.00	2.00	0.00	0.00	0.50			
34	E	694723.50	739097.46	10.00	191.00	0.00	0.00	0.50			
35	A	694663.96	739056.65	10.00	63.00	0.00	0.00	0.50			
36	D	694730.09	739046.72	10.00	102.00	0.00	0.00	0.50			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
37	D	694705.42	739037.94	10.00	23.00	0.00	0.00	0.50			
38	E	694707.20	739017.51	10.00	355.00	0.00	0.00	0.50			
39	E	694709.77	738982.63	10.00	2.00	0.00	0.00	0.50			
40	E	694753.36	739070.04	10.00	284.00	0.00	0.00	0.50			
41	E	694792.18	739081.88	10.00	291.00	0.00	0.00	0.50			
42	E	694830.26	739095.30	10.00	292.00	0.00	0.00	0.50			
43	E	694712.76	738943.79	10.00	2.00	0.00	0.00	0.50			
44	E	694708.66	738905.08	10.00	354.00	0.00	0.00	0.50			
45	E	694699.89	738866.95	10.00	348.00	0.00	0.00	0.50			
46	E	694692.32	738828.99	10.00	348.00	0.00	0.00	0.50			
47	E	694685.87	738789.77	10.00	349.00	0.00	0.00	0.50			
48	E	694681.26	738750.46	10.00	349.00	0.00	0.00	0.50			
49	E	694676.11	738711.51	10.00	349.00	0.00	0.00	0.50			
50	J	694686.56	738669.65	10.00	170.00	5.00	0.00	2.00			
51	J	694683.53	738647.14	10.00	170.00	5.00	0.00	2.00			
52	J	694681.45	738629.74	10.00	170.00	5.00	0.00	2.00			
53	J	694679.68	738609.10	10.00	170.00	5.00	0.00	2.00			
54	J	694674.47	738565.02	10.00	179.00	5.00	0.00	2.00			
55	E	694866.18	739112.99	10.00	304.00	0.00	0.00	0.50			
56	E	694900.50	739133.56	10.00	295.00	0.00	0.00	0.50			
57	E	694932.80	739154.34	10.00	303.00	0.00	0.00	0.50			
58	E	694924.94	739131.59	10.00	118.00	0.00	0.00	0.50			
59	A	694543.95	739124.55	8.00	55.00	0.00	0.00	0.50			
60	A	694574.07	739108.02	8.00	55.00	0.00	0.00	0.50			
61	A	694604.26	739091.24	8.00	55.00	0.00	0.00	0.50			
62	A	694634.40	739074.35	8.00	55.00	0.00	0.00	0.50			
63	E	694700.33	739131.26	10.00	2.00	0.00	0.00	0.50			
64	E	694714.20	739165.97	10.00	192.00	0.00	0.00	0.50			
65	E	694707.49	739198.13	10.00	189.00	0.00	0.00	0.50			
66	E	694700.32	739232.09	10.00	189.00	0.00	0.00	0.50			
67	E	694692.51	739267.89	10.00	189.00	0.00	0.00	0.50			
68	E	694668.67	739290.87	10.00	20.00	0.00	0.00	0.50			
69	E	694675.95	739328.25	10.00	194.00	0.00	0.00	0.50			
70	E	694662.56	739367.87	10.00	204.00	0.00	0.00	0.50			
71	E	694650.61	739399.35	10.00	211.00	0.00	0.00	0.50			
72	E	694637.49	739432.77	10.00	200.00	0.00	0.00	0.50			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
73	E	694444.07	739585.34	10.00	78.00	0.00	0.00	0.50			
74	C	694419.89	739630.01	10.00	357.00	0.00	0.00	0.50			
75	E	694455.92	739603.76	10.00	249.00	0.00	0.00	0.50			
76	C	694392.79	739610.16	10.00	274.00	0.00	0.00	0.50			
77	C	694409.11	739590.31	10.00	84.00	0.00	0.00	0.50			
78	C	694442.13	739661.78	10.00	171.00	0.00	0.00	0.50			
79	C	694433.45	739719.16	10.00	349.00	0.00	0.00	0.50			
81	E	694523.13	739574.51	10.00	243.00	0.00	0.00	0.50			
82	E	694554.52	739552.85	10.00	227.00	0.00	0.00	0.50			
83	E	694487.52	739592.02	10.00	243.00	0.00	0.00	0.50			
84	E	694582.12	739527.05	10.00	219.00	0.00	0.00	0.50			
85	E	694605.19	739497.98	10.00	214.00	0.00	0.00	0.50			
86	E	694623.32	739466.11	10.00	205.00	0.00	0.00	0.50			
87	C	693969.92	739420.83	10.00	122.00	0.00	0.00	0.50			
88	C	694007.60	739441.66	10.00	120.00	0.00	0.00	0.50			
89	C	694046.60	739460.24	10.00	117.00	0.00	0.00	0.50			
90	C	694085.95	739477.73	10.00	117.00	0.00	0.00	0.50			
91	C	694125.32	739495.25	10.00	115.00	0.00	0.00	0.50			
92	C	694164.72	739512.72	10.00	116.00	0.00	0.00	0.50			
93	C	694203.98	739530.23	10.00	118.00	0.00	0.00	0.50			
94	C	694243.41	739547.73	10.00	118.00	0.00	0.00	0.50			
95	C	694282.64	739565.09	10.00	111.00	0.00	0.00	0.50			
96	C	694321.57	739580.88	10.00	111.00	0.00	0.00	0.50			
97	C	694362.99	739590.09	10.00	88.00	0.00	0.00	0.50			
98	C	694439.58	739760.92	10.00	353.00	0.00	0.00	0.50			
99	C	694448.02	739803.25	10.00	349.00	0.00	0.00	0.50			
100	C	693760.38	739284.08	10.00	119.00	0.00	0.00	0.50			
101	C	693784.47	739320.17	10.00	309.00	0.00	0.00	0.50			
102	C	693725.22	739289.87	10.00	300.00	0.00	0.00	0.50			
103	F	693734.04	739298.83	8.00	38.00	0.00	0.00	0.50			
104	C	693847.09	739361.25	10.00	309.00	0.00	0.00	0.50			
105	C	693825.29	739321.26	10.00	128.00	0.00	0.00	0.50			
106	C	693690.52	739271.34	10.00	295.00	0.00	0.00	0.50			
111	F	694357.76	739301.16	8.00	338.00	0.00	0.00	0.50			
112	F	694368.26	739339.59	8.00	349.00	0.00	0.00	0.50			
113	F	694377.23	739377.91	8.00	338.00	0.00	0.00	0.50			

DATE: 16 August 2022

DESIGNER: Alex Naper

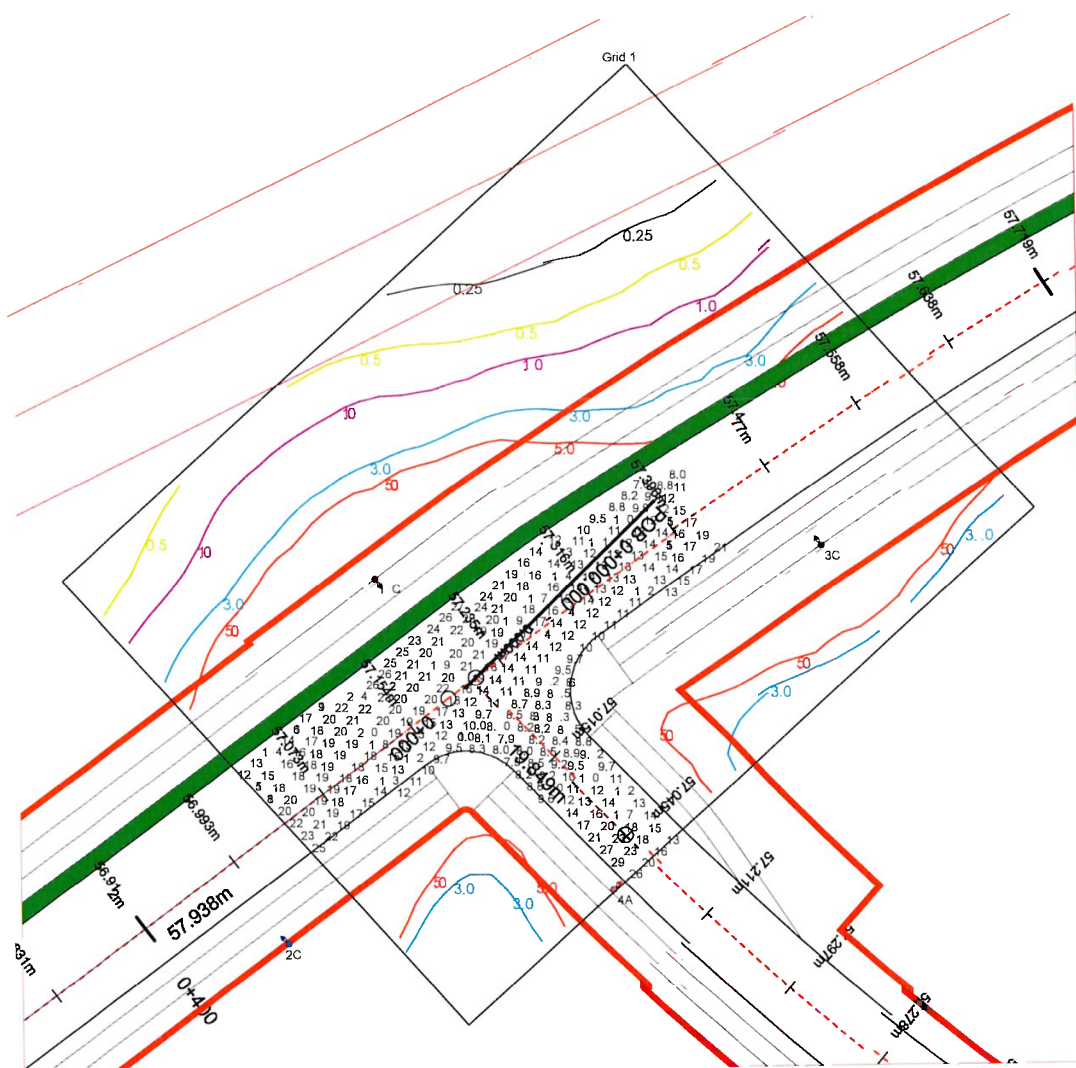
PROJECT No: SES 09922 Rev C PROJECT NAME: MOOR – Maynooth Outer Orbital Road - Sky Castle Ltd

**Layout Continued**

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
114	F	694385.75	739416.30	8.00	340.00	0.00	0.00	0.50			
115	F	694393.60	739454.76	8.00	339.00	0.00	0.00	0.50			
116	F	694401.10	739493.28	8.00	345.00	0.00	0.00	0.50			
117	F	694408.06	739531.35	8.00	351.00	0.00	0.00	0.50			
118	F	694414.57	739569.78	8.00	351.00	0.00	0.00	0.50			
119	J	694670.51	738542.82	10.00	170.00	5.00	0.00	2.00			

Horizontal Illuminance (lux)

Grid 1

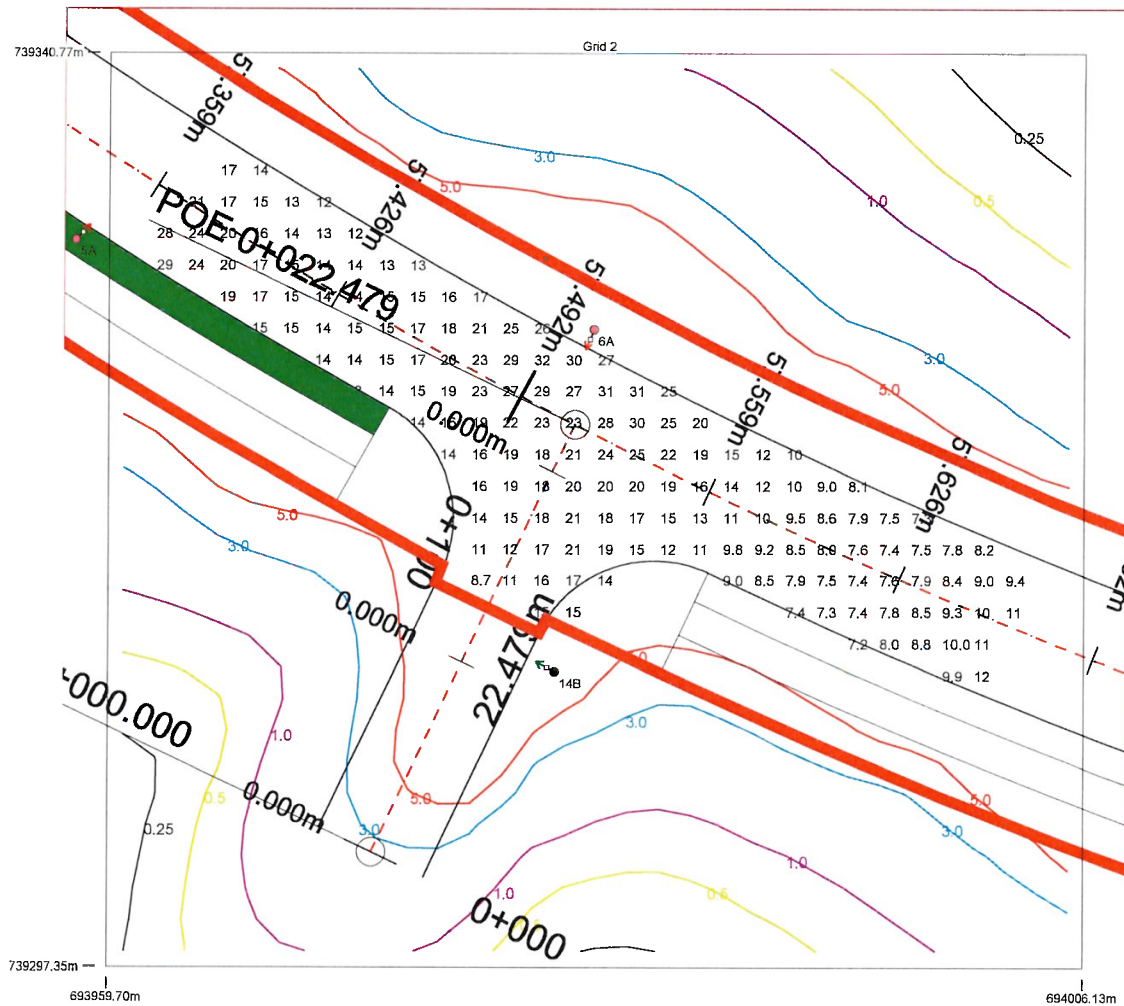


Results

Eav	15.24
Emin	7.63
E _{max}	28.68
Emin/E _{max}	0.27
Emin/Eav	0.50

Horizontal Illuminance (lux)

Grid 2

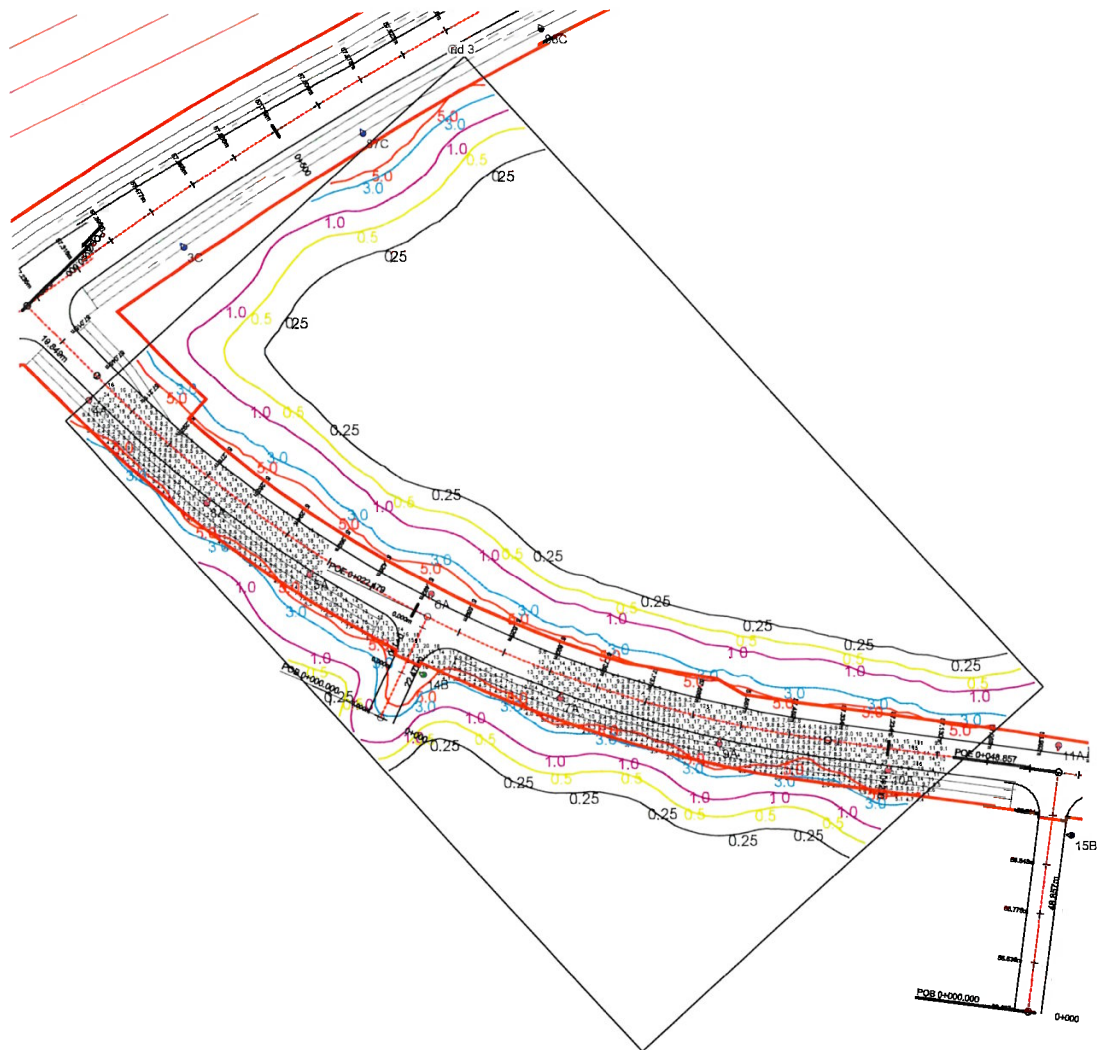


Results

Eav	15.62
Emin	7.25
E _{max}	32.15
E _{min} /E _{max}	0.23
E _{min} /E _{av}	0.46

Horizontal Illuminance (lux)

Grid 3

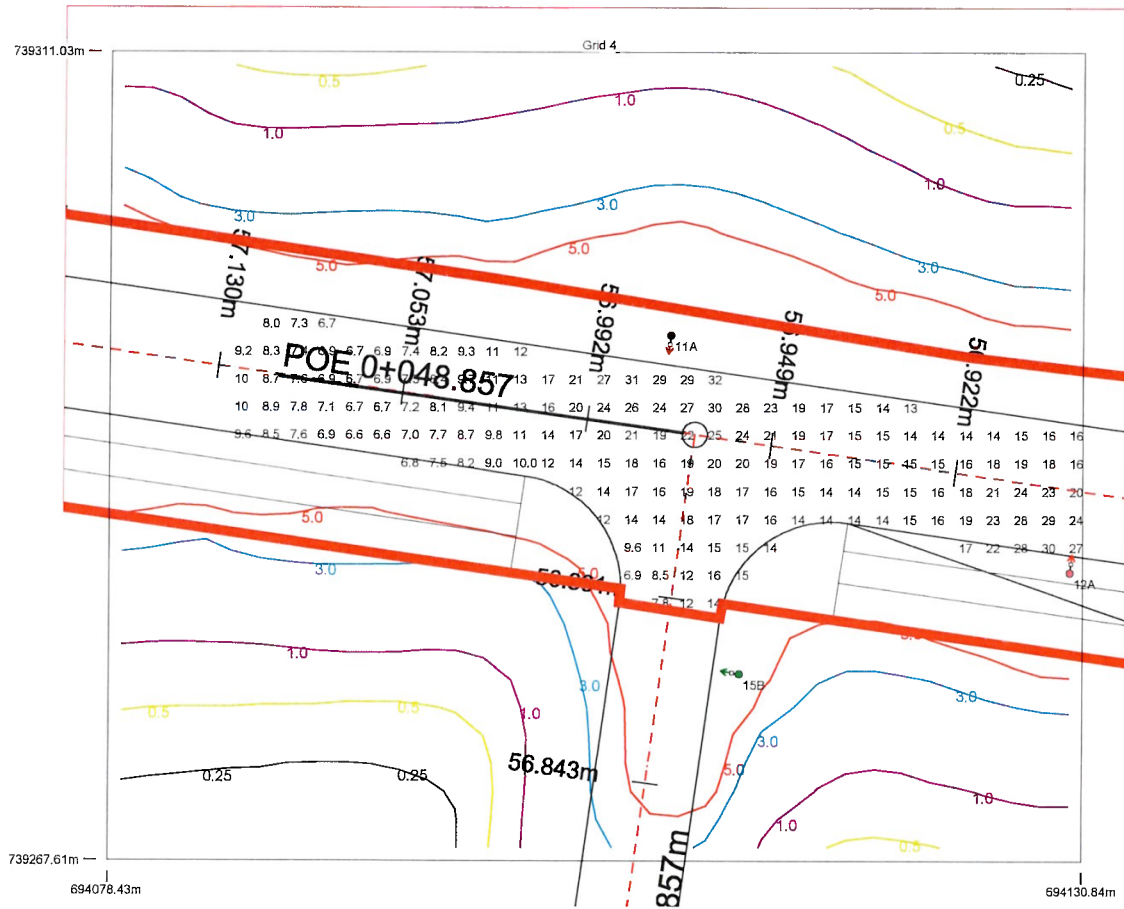


Results

Eav	11.59
Emin	2.58
E _{max}	29.50
Emin/E _{max}	0.09
Emin/Eav	0.22

Horizontal Illuminance (lux)

Grid 4

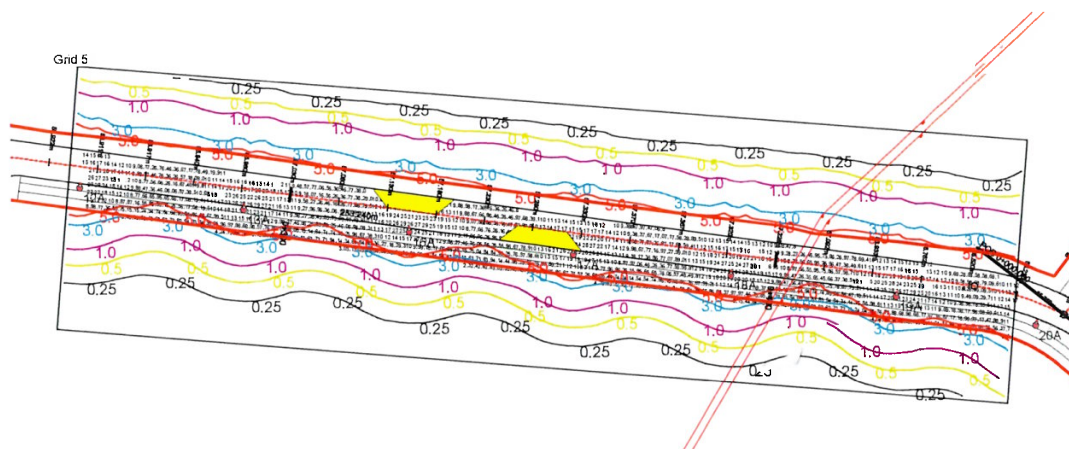


Results

Eav	15.06
Emin	6.56
E _{max}	31.93
Emin/E _{max}	0.21
Emin/Eav	0.44

Horizontal Illuminance (lux)

Grid 5



Results

Eav	10.71
Emin	2.25
Emax	29.30
Emin/Emax	0.08
Emin/Eav	0.21

Horizontal Illuminance (lux)

Grid 6



Results

Eav	15.46
Emin	6.87
Emax	32.79
Emin/Emax	0.21
Emin/Eav	0.44

Horizontal Illuminance (lux)

Grid 7

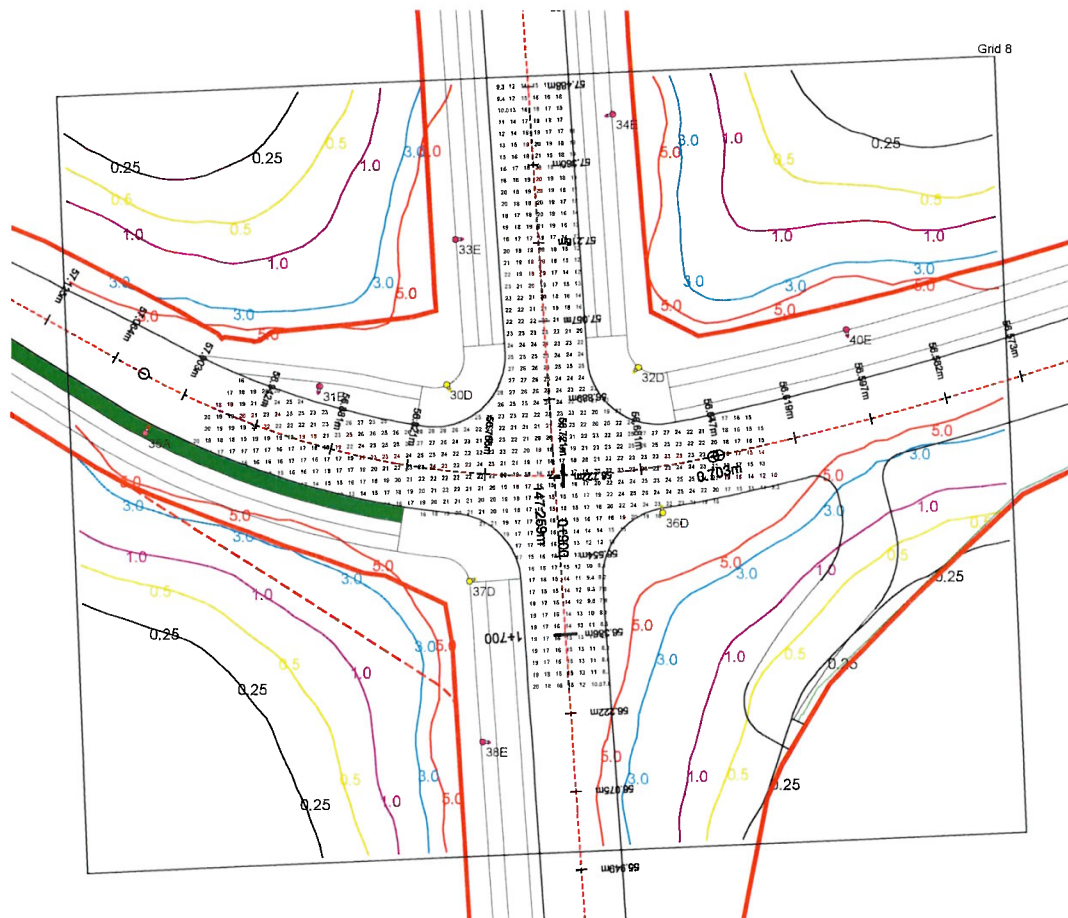


Results

Eav	16.18
Emin	7.79
E _{max}	31.75
E _{min} /E _{max}	0.25
E _{min} /E _{av}	0.48

Horizontal Illuminance (lux)

Grid 8

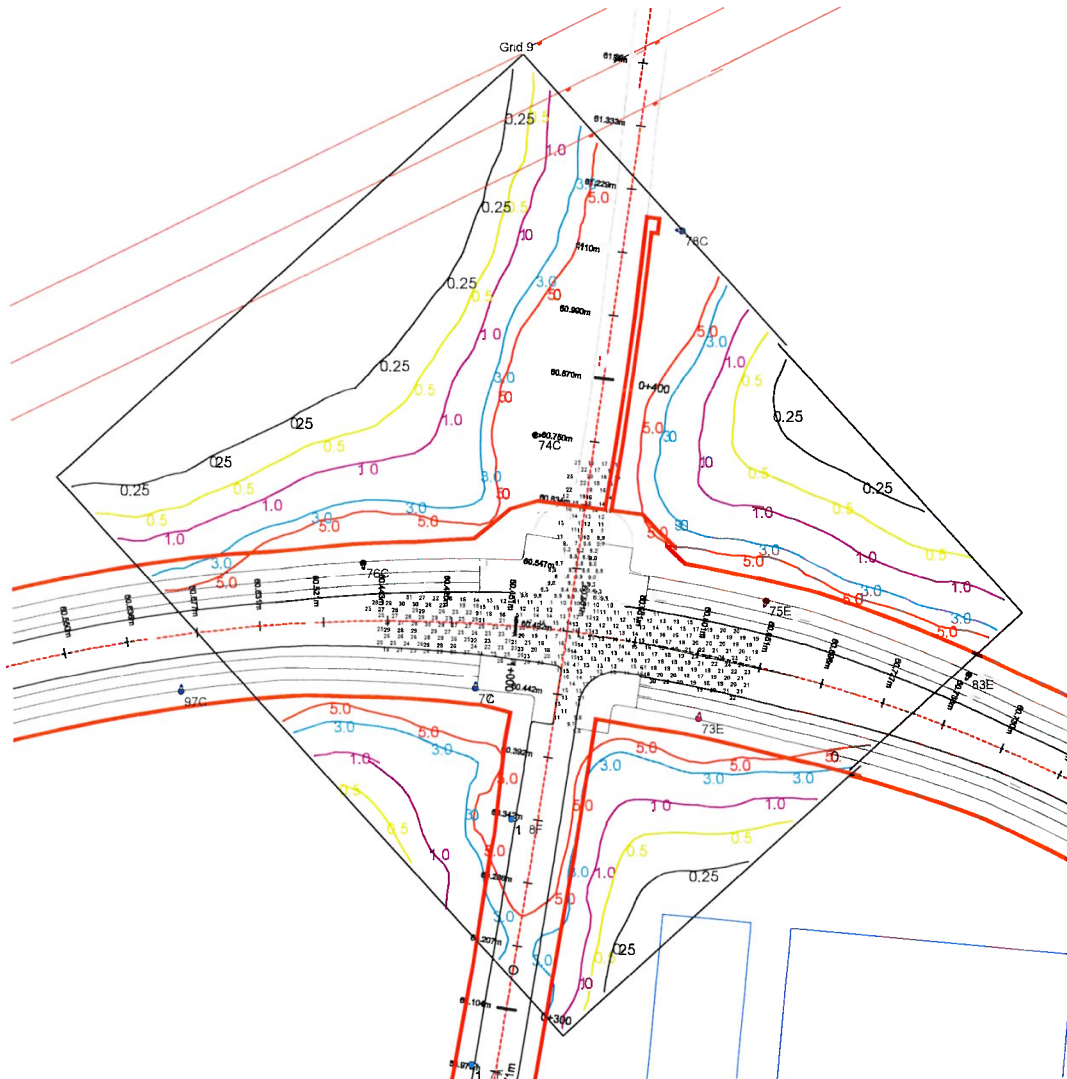


Results

Eav	18.98
Emin	7.75
E _{max}	28.42
E _{min} /E _{max}	0.27
E _{min} /E _{av}	0.41

Horizontal Illuminance (lux)

Grid 9

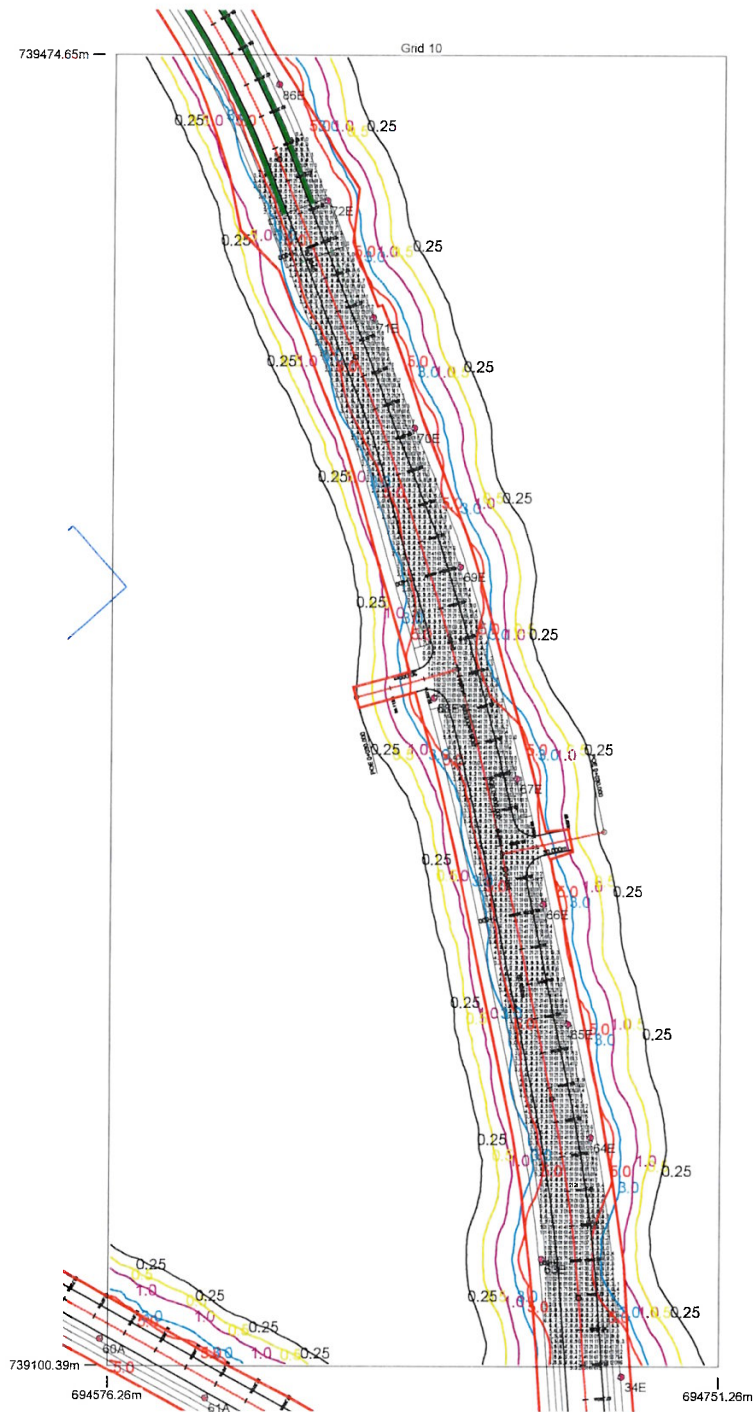


Results

Eav	17.49
Emin	8.56
E _{max}	30.79
Emin/E _{max}	0.28
Emin/Eav	0.49

Horizontal Illuminance (lux)

Grid 10

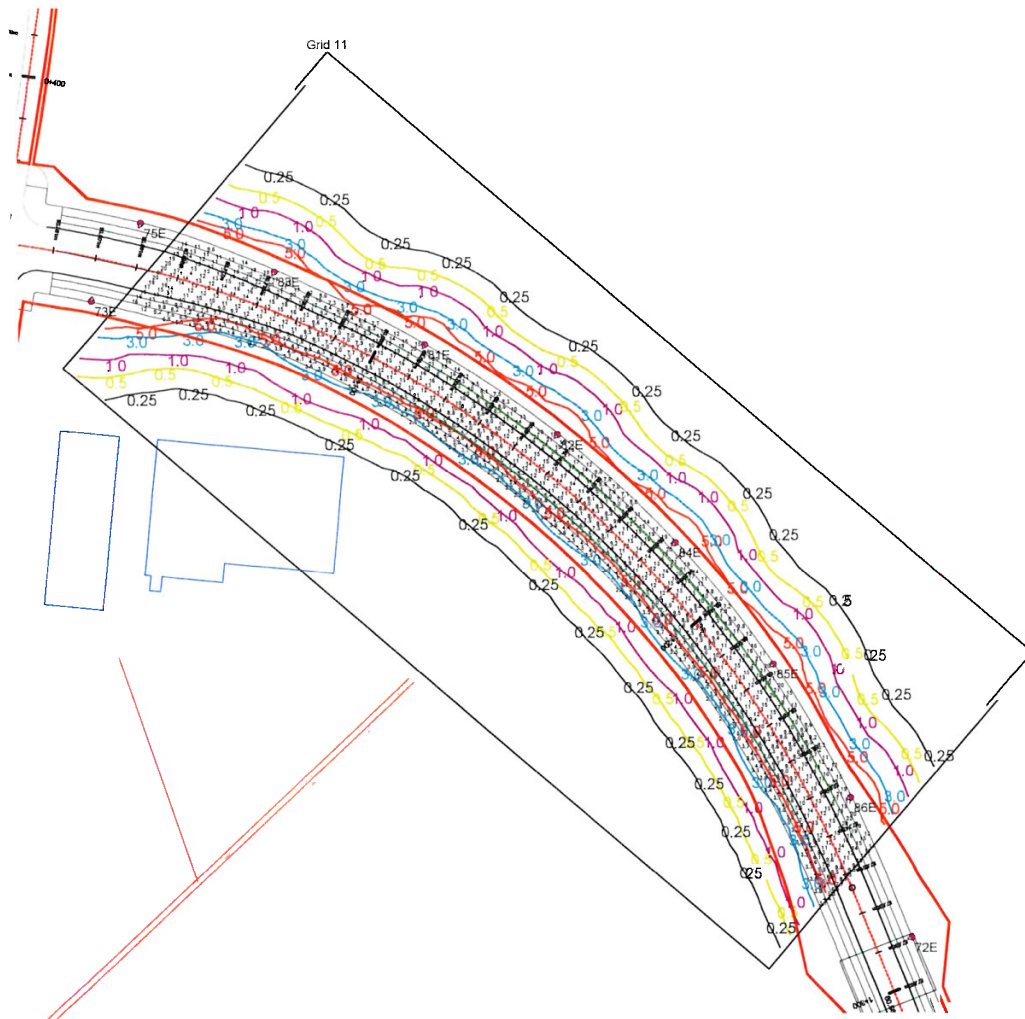


Results

Eav	10.61
Emin	2.09
Emax	22.39
Emin/Emax	0.09
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 11

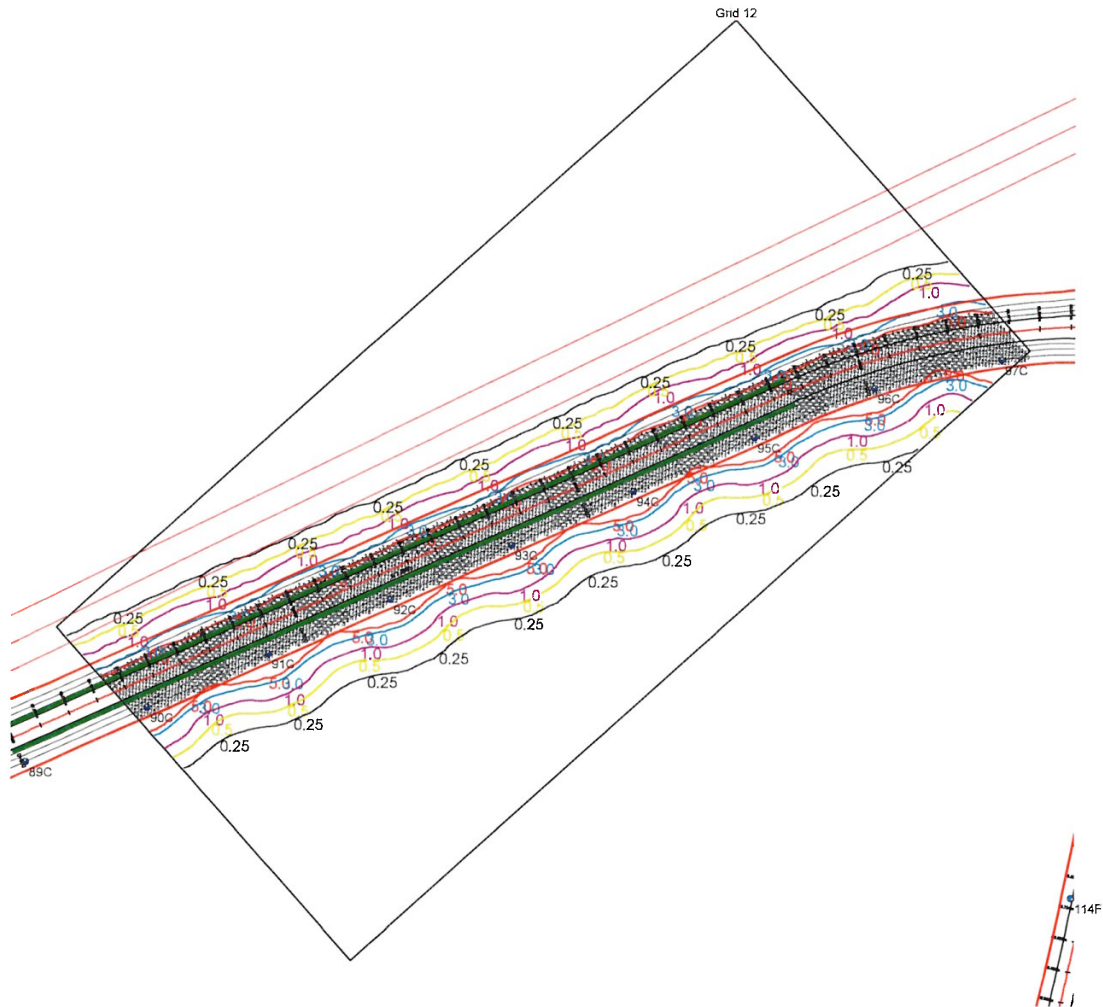


Results

Eav	10.42
Emin	2.51
Emax	21.66
Emin/Emax	0.12
Emin/Eav	0.24

Horizontal Illuminance (lux)

Grid 12

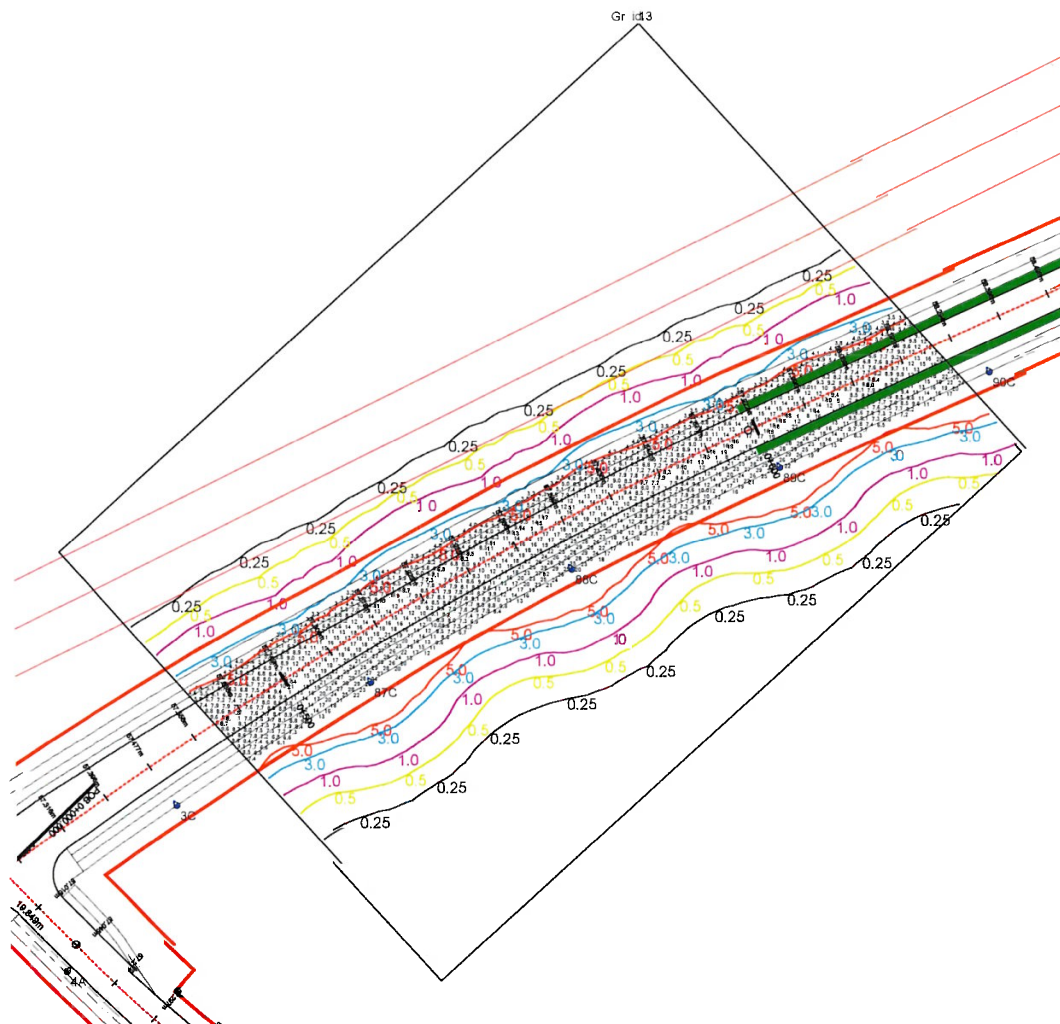


Results

Eav	12.33
Emin	3.00
Emax	30.25
Emin/Emax	0.10
Emin/Eav	0.24

Horizontal Illuminance (lux)

Grid 13

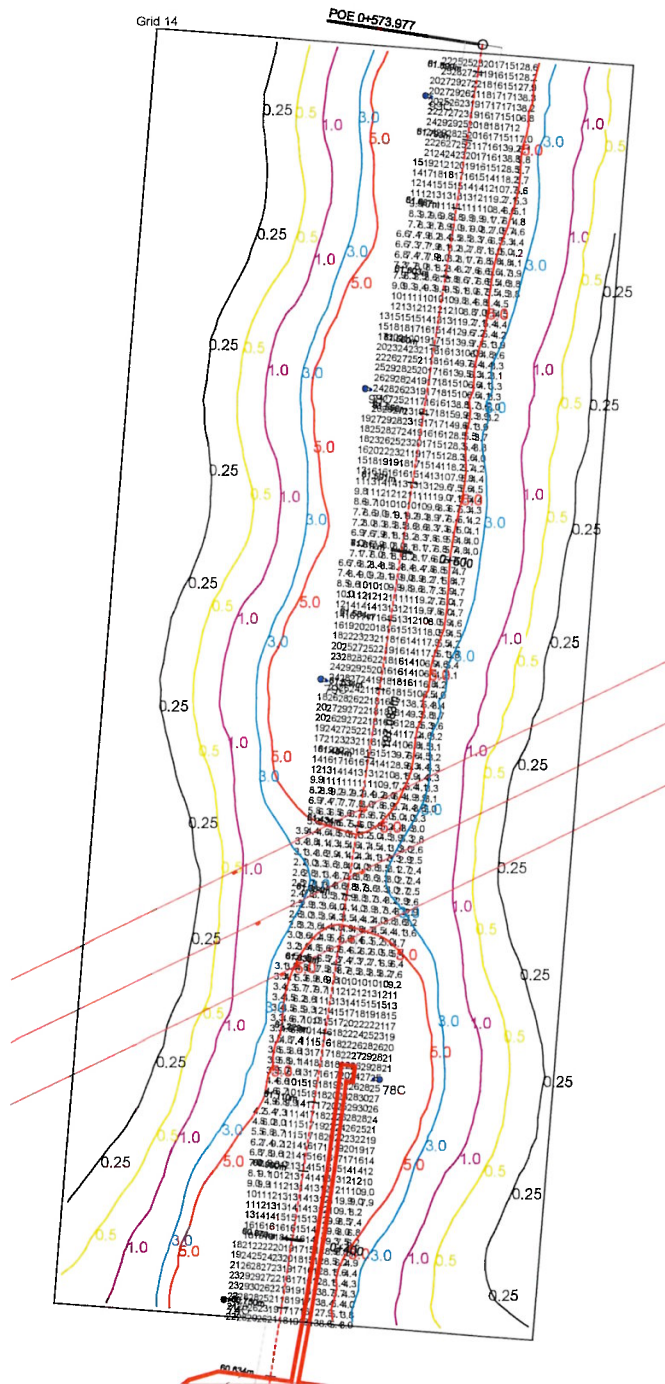


Results

Eav	11.68
Emin	2.97
E _{max}	29.38
Emin/E _{max}	0.10
Emin/Eav	0.25

Horizontal Illuminance (lux)

Grid 14

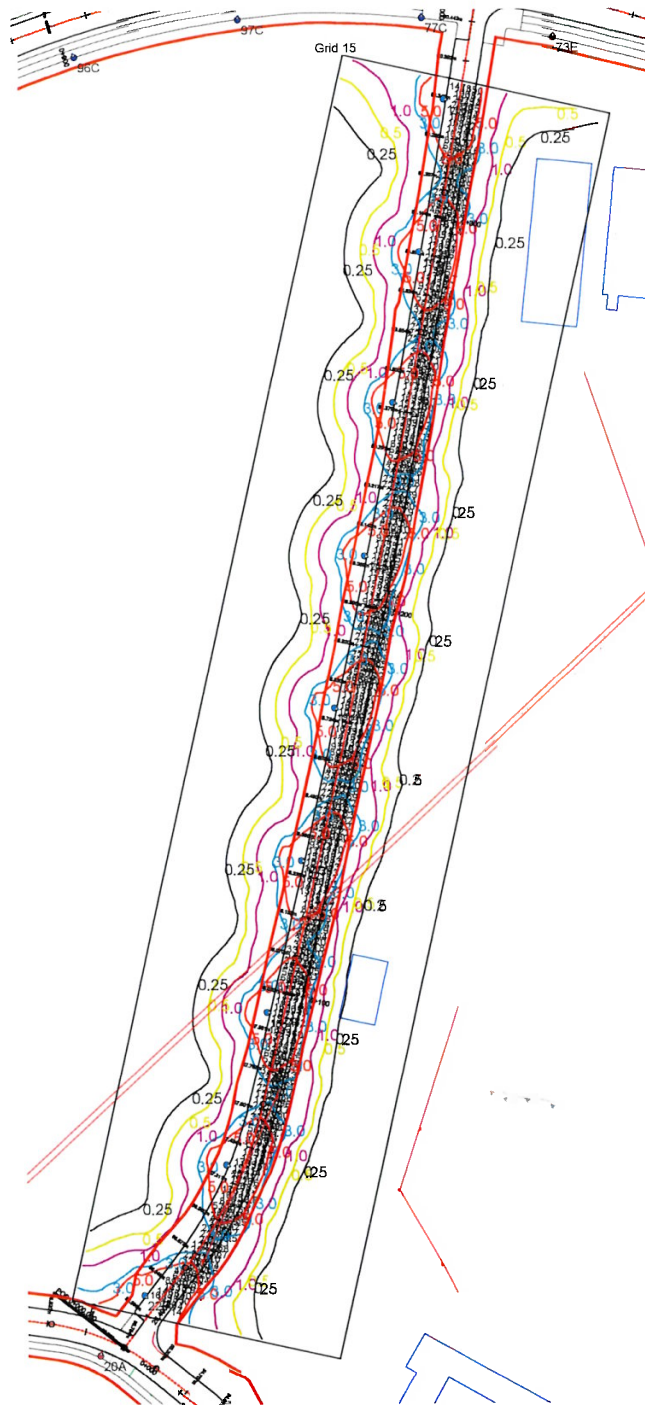


Results

Eav	12.30
Emin	2.41
Emax	29.89
Emin/Emax	0.08
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 15

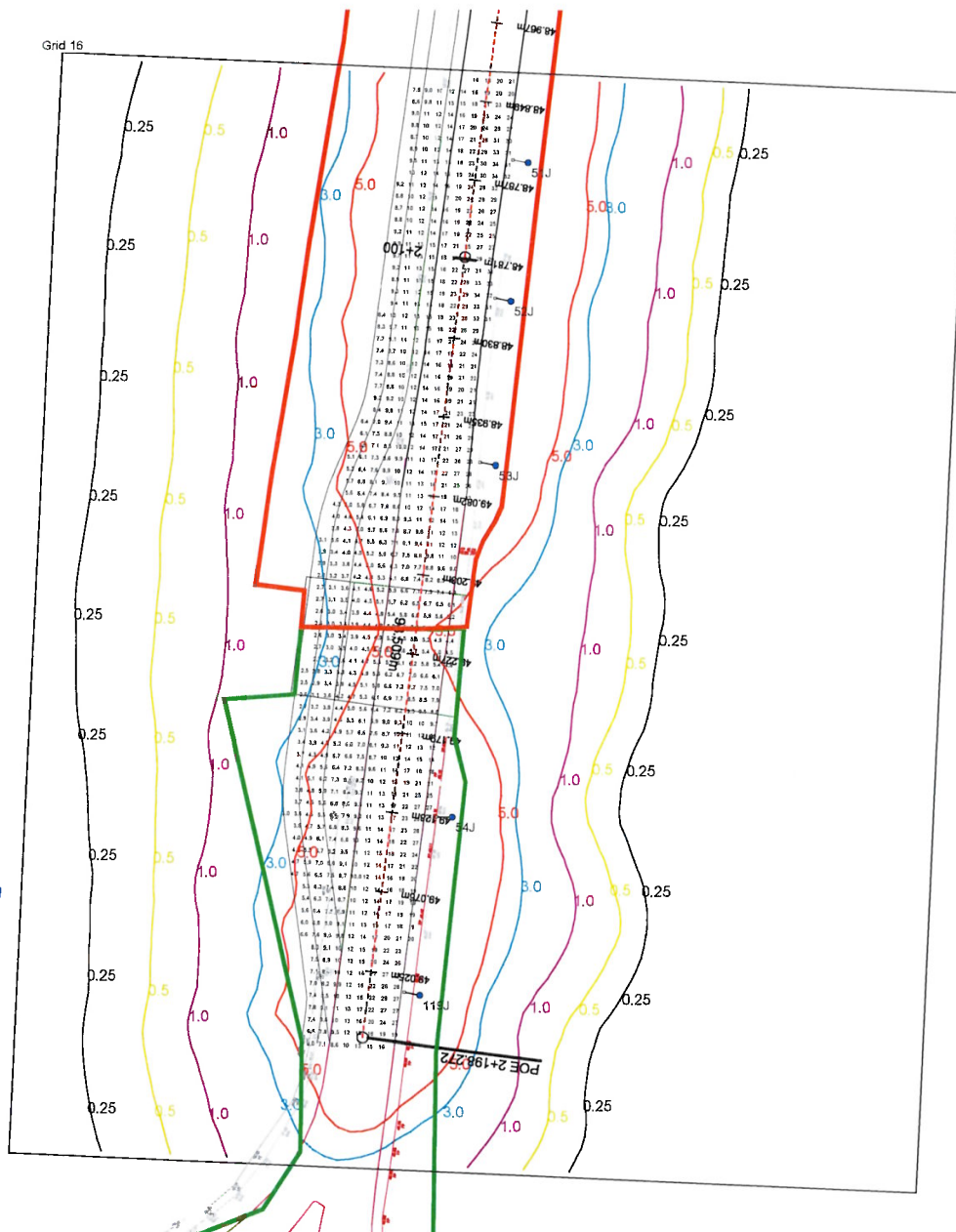


Results

Eav	9.01
Emin	1.87
Emax	22.13
Emin/Emax	0.08
Emin/Eav	0.21

Horizontal Illuminance (lux)

Grid 16

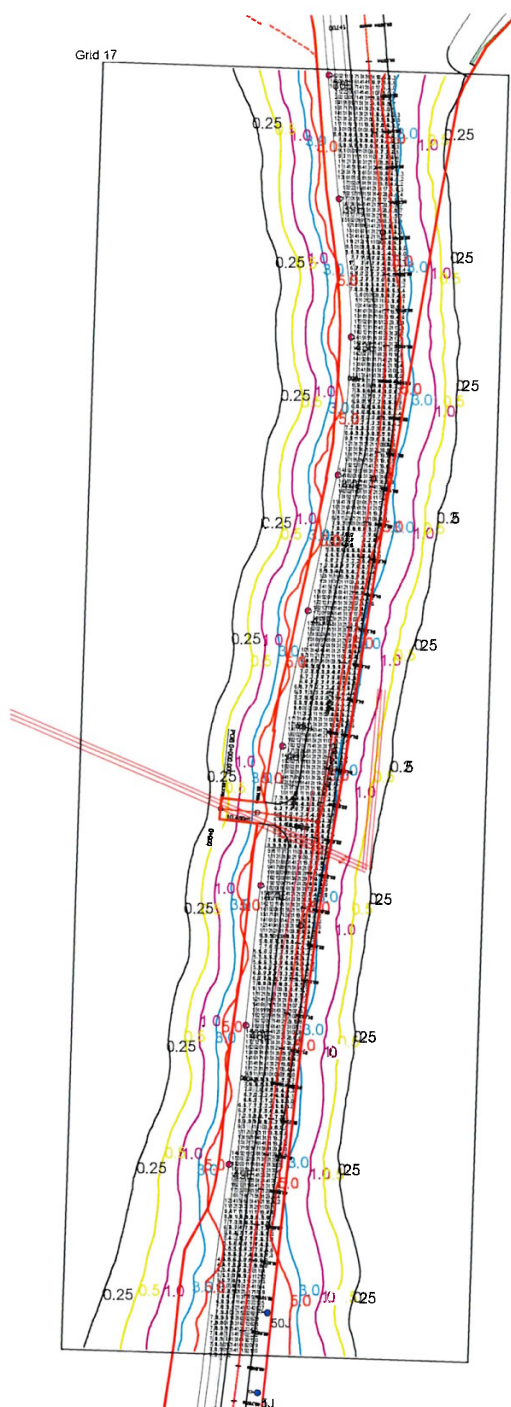


Results

Eav	12.41
Emin	2.45
Emax	34.24
Emin/Emax	0.07
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 17

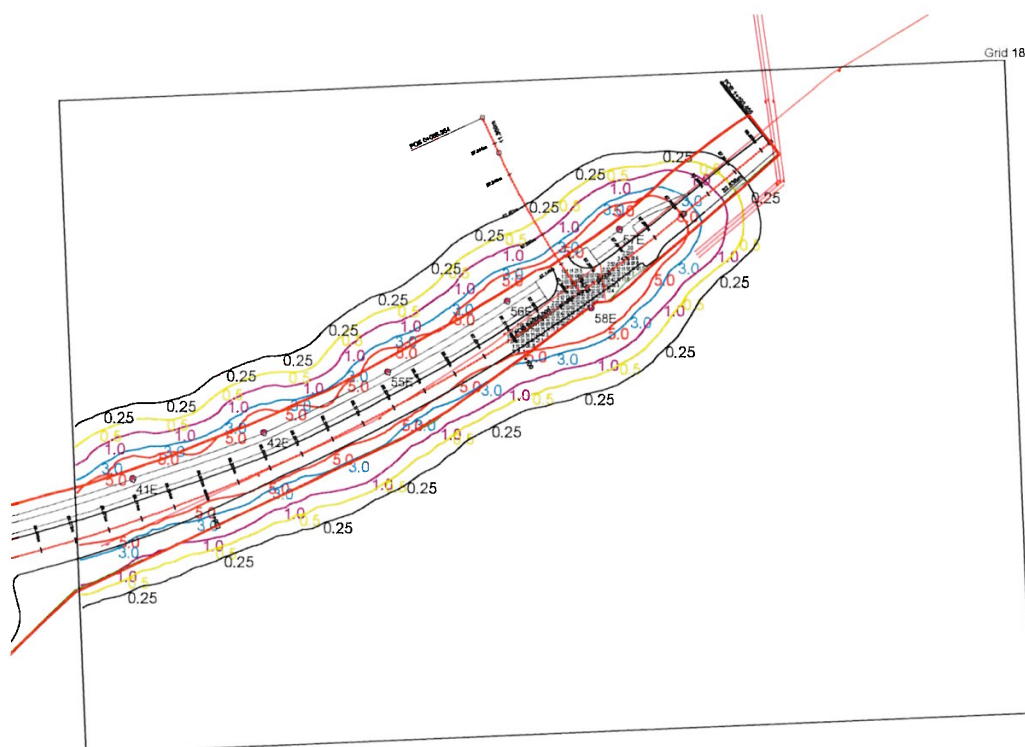


Results

Eav	10.69
Emin	2.65
Emax	28.54
Emin/Emax	0.09
Emin/Eav	0.25

Horizontal Illuminance (lux)

Grid 18

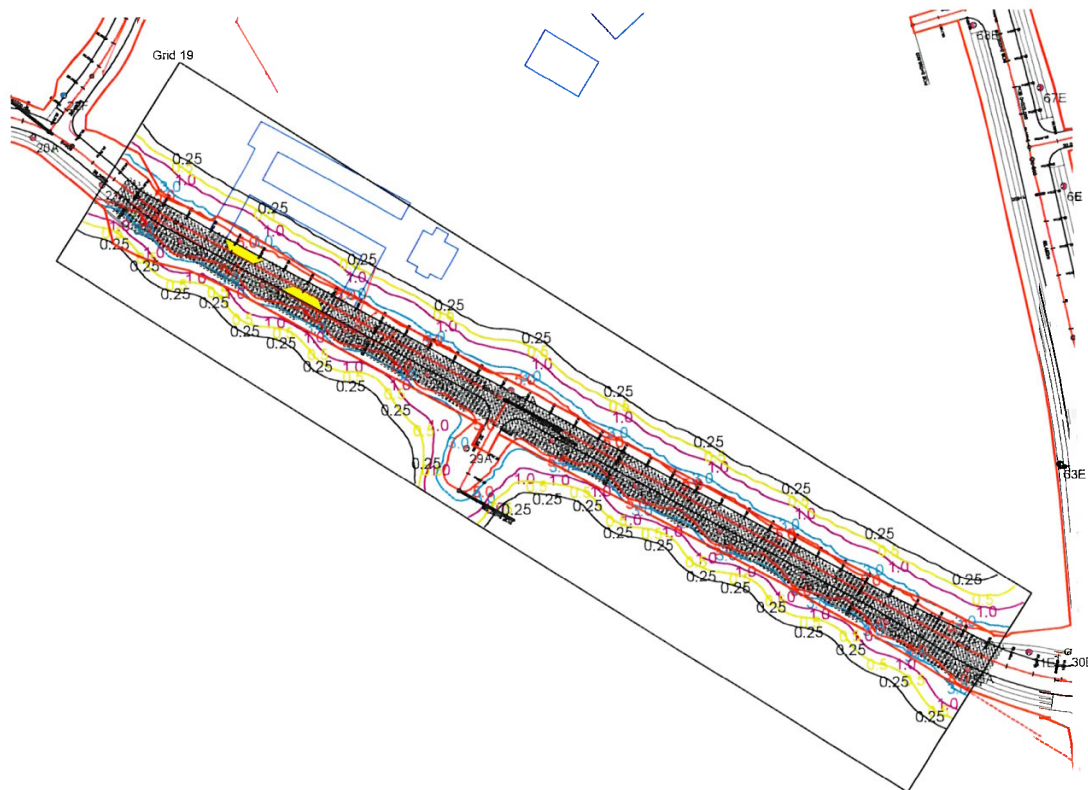


Results

Eav	19.83
Emin	8.05
Emax	27.57
Emin/Emax	0.29
Emin/Eav	0.41

Horizontal Illuminance (lux)

Grid 19

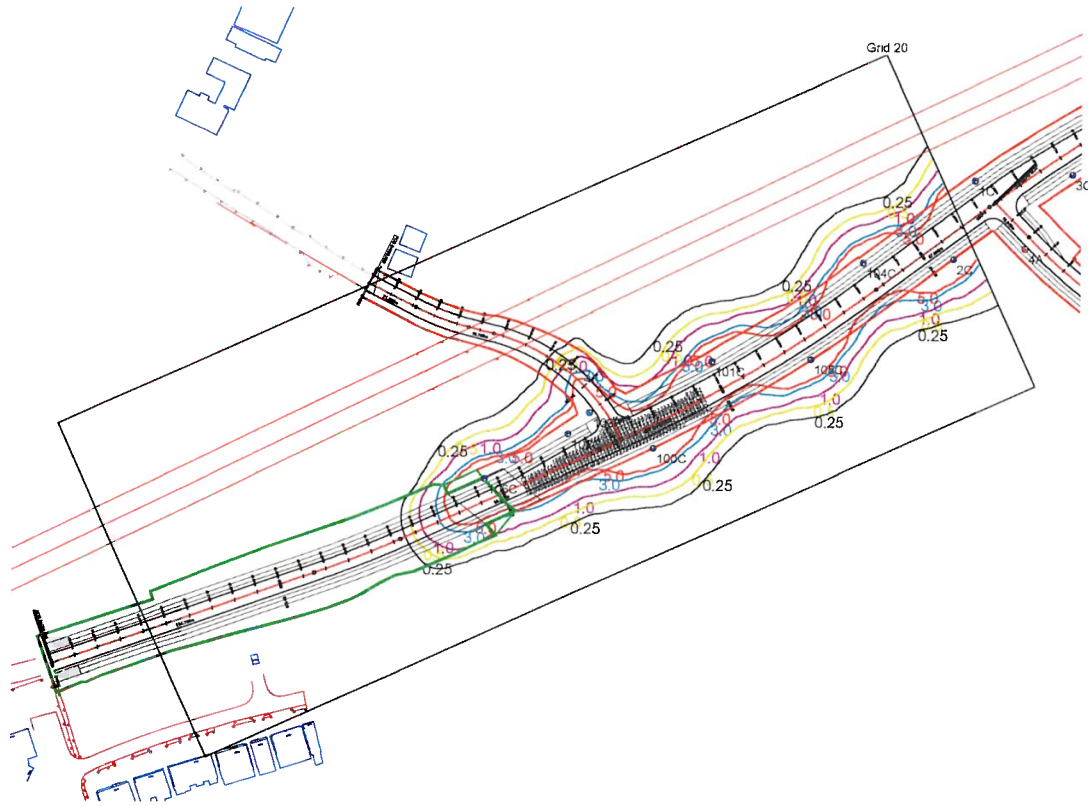


Results

Eav	11.01
Emin	2.36
Emax	31.00
Emin/Emax	0.08
Emin/Eav	0.21

Horizontal Illuminance (lux)

Grid 20



Results

Eav	15.07
Emin	6.86
E _{max}	27.68
E _{min} /E _{max}	0.25
E _{min} /E _{av}	0.46

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APPENDIX 10-1

**EQUIPMENT SPECIFICATION
AND WEATHER CONDITIONS**

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Survey details

Weather	Cloud cover	0 %
	Precipitation	0 mm
	Temperature	28 °C at set up, falling to 17 °C overnight, returning to 28 °C next day
	Wind direction	SE
	Wind speed	0-2 m/s during daytime, falling to 0 m/s overnight
	WS measurement	Anemo anemometer 2 m above ground level
Field details	DB1 calibration	Station N4 20.07.21 1615 @ 39.3 mV/Pa
	DB2 calibration	Station N3 20.07.21 1530 @ 41.4 mV/Pa
	DB3 calibration	Station N1 20.07.21 1440 @ 42.0 mV/Pa
	DB4 calibration	Station N5 20.07.21 1415 @ 41.0 mV/Pa
	DB5 calibration	Station N2 20.07.21 1549 @ 42.9 mV/Pa
	Acoustic field	Free field
	Microphone height	1.2 m above ground level
Instruments	Standard	ISO 1996 (2016 & 2017)
	Survey operator	Damian Brosnan BSc MSc MIOA MIEI
	Calibrator	Bruel & Kjaer Type 4231 Serial 2342544 Verification 13.05.21
	SLM DB1	NTi Audio XL2 Serial A2A-13658-E0 Microphone A14735 Pre-amp 7066 Verification 13.05.21
	SLM DB2	NTi Audio XL2 Serial A2A-14337-E0 Microphone A14972 Pre-amp 7266 Verification 13.05.21
	SLM DB3	NTi Audio XL2 Serial A2A-15392-E0 Microphone A16340 Pre-amp 7956 Verification 13.05.21
	SLM DB4	NTi Audio XL2 Serial A2A-15429-E0 Microphone A16329 Pre-amp 7945 Verification 14.02.20
	SLM DB5	NTi Audio XL2 Serial A2A-17932-E0 Microphone A18747 Pre-amp 9220 Verification 24.07.20
	Certificates	Available on request

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APPENDIX 10-2

BASELINE NOISE MONITORING RESULTS

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Baseline noise data

Start time	N1	N1	N2	N2	N3	N3	N4	N4	N5	N5
	L _{Aeq}	L _{A(F90)}	L _{Aeq}	L _{A(F90)}	L _{Aeq}	L _{A(F90)}	L _{Aeq}	L _{A(F90)}	L _{Aeq}	L _{A(F90)}
20/07/2021 15:00	61	38	-	-	-	-	-	-	50	39
20/07/2021 15:15	61	38	-	-	-	-	-	-	52	41
20/07/2021 15:30	60	40	-	-	-	-	-	-	52	41
20/07/2021 15:45	62	43	-	-	-	-	-	-	51	40
20/07/2021 16:00	63	41	46	39	54	38	-	-	52	41
20/07/2021 16:15	64	45	47	42	54	38	-	-	52	41
20/07/2021 16:30	63	45	47	40	54	36	-	-	52	41
20/07/2021 16:45	63	45	46	40	54	38	-	-	52	43
20/07/2021 17:00	64	45	47	41	55	39	64	47	52	42
20/07/2021 17:15	64	48	48	42	54	38	64	43	54	44
20/07/2021 17:30	65	46	47	41	54	37	64	45	52	42
20/07/2021 17:45	64	47	48	41	54	38	64	48	52	42
20/07/2021 18:00	63	45	47	39	52	37	63	40	52	39
20/07/2021 18:15	63	43	46	40	53	37	64	43	51	41
20/07/2021 18:30	62	38	47	39	52	36	63	42	51	40
20/07/2021 18:45	62	40	45	39	53	36	62	39	51	39
20/07/2021 19:00	62	40	47	38	52	36	61	40	51	41
20/07/2021 19:15	60	37	46	36	53	36	62	38	49	38
20/07/2021 19:30	60	38	44	37	52	36	61	36	50	39
20/07/2021 19:45	59	38	44	37	53	38	61	37	49	38
20/07/2021 20:00	58	35	42	34	51	39	60	35	49	38
20/07/2021 20:15	61	37	45	36	54	37	62	36	51	38
20/07/2021 20:30	59	37	42	36	51	36	61	38	51	37
20/07/2021 20:45	60	38	43	37	51	37	60	40	49	37
20/07/2021 21:00	58	39	42	37	51	37	61	41	49	38
20/07/2021 21:15	59	39	43	38	52	37	60	39	49	38
20/07/2021 21:30	54	38	42	36	49	35	59	36	47	38
20/07/2021 21:45	57	39	43	37	49	35	60	36	49	39
20/07/2021 22:00	55	39	40	36	51	36	58	36	47	40
20/07/2021 22:15	55	37	40	35	49	34	59	35	47	39
20/07/2021 22:30	55	37	45	35	46	34	58	32	48	38
20/07/2021 22:45	56	37	40	35	48	35	59	34	47	39
20/07/2021 23:00	54	36	39	33	48	34	58	33	47	38
20/07/2021 23:15	56	35	46	32	46	32	58	32	49	38
20/07/2021 23:30	56	36	47	35	51	34	60	35	49	38
20/07/2021 23:45	52	34	41	32	45	31	56	31	45	37
21/07/2021 00:00	53	31	37	29	43	29	52	29	41	36
21/07/2021 00:15	52	30	42	27	44	29	55	27	45	36
21/07/2021 00:30	47	31	34	28	43	28	51	28	42	37
21/07/2021 00:45	49	30	35	28	38	26	51	26	40	36
21/07/2021 01:00	53	30	37	27	38	27	54	28	39	36
21/07/2021 01:15	34	29	32	27	45	27	49	26	41	36
21/07/2021 01:30	45	29	33	26	38	27	47	26	42	35
21/07/2021 01:45	30	28	29	26	30	26	46	26	38	35
21/07/2021 02:00	49	28	34	26	40	28	50	27	40	35
21/07/2021 02:15	31	27	29	25	33	27	48	27	38	35
21/07/2021 02:30	47	27	32	25	41	26	46	25	36	35
21/07/2021 02:45	31	26	39	24	32	25	50	25	40	35
21/07/2021 03:00	48	28	44	26	32	27	49	26	39	35
21/07/2021 03:15	31	27	30	26	30	26	31	27	36	35
21/07/2021 03:30	31	28	28	26	30	26	45	28	38	35
21/07/2021 03:45	47	29	33	27	33	27	51	29	39	36
21/07/2021 04:00	53	29	37	27	33	27	50	29	39	36
21/07/2021 04:15	51	29	35	28	35	27	51	29	40	35

21/07/2021 04:30	4	31	36	29	45	28	55	30	44	36
21/07/2021 04:45	54	34	52	32	37	32	54	32	43	38
21/07/2021 05:00	55	34	51	33	46	33	56	33	43	38
21/07/2021 05:15	55	35	46	33	51	35	55	34	46	38
21/07/2021 05:30	59	37	49	37	50	37	59	37	48	38
21/07/2021 05:45	57	37	47	36	50	37	59	36	46	38
21/07/2021 06:00	62	40	53	38	53	41	61	41	48	40
21/07/2021 06:15	64	44	57	42	57	44	65	49	52	42
21/07/2021 06:30	65	45	51	44	55	45	65	48	52	43
21/07/2021 06:45	64	45	47	44	56	44	65	47	54	44
21/07/2021 07:00	64	46	48	44	56	44	64	46	53	45
21/07/2021 07:15	65	46	52	43	58	44	65	45	54	46
21/07/2021 07:30	65	45	50	41	59	41	65	48	53	44
21/07/2021 07:45	63	41	51	37	54	37	65	43	52	41
21/07/2021 08:00	63	41	52	37	54	37	63	43	52	39
21/07/2021 08:15	63	39	49	36	54	36	63	38	52	40
21/07/2021 08:30	63	37	50	36	57	35	63	44	52	40
21/07/2021 08:45	64	37	55	35	56	34	63	36	51	43
21/07/2021 09:00	61	36	43	33	52	32	62	37	51	43
21/07/2021 09:15	62	37	50	35	53	33	63	38	51	42
21/07/2021 09:30	62	38	42	34	53	35	62	42	54	43
21/07/2021 09:45	62	36	42	34	52	34	62	35	50	41
21/07/2021 10:00	62	39	43	34	52	34	62	38	50	39
21/07/2021 10:15	61	34	53	34	53	34	62	37	51	38
21/07/2021 10:30	61	34	53	32	52	33	61	39	50	37
21/07/2021 10:45	60	38	46	33	51	33	61	36	51	38
21/07/2021 11:00	61	37	45	34	51	34	61	35	50	39
21/07/2021 11:15	60	35	52	34	54	34	62	38	50	38
21/07/2021 11:30	62	39	45	35	52	34	62	33	51	40
21/07/2021 11:45	60	37	52	35	52	34	61	35	50	38
21/07/2021 12:00	60	37	44	34	51	34	61	40	50	37
21/07/2021 12:15	61	36	42	35	51	34	61	34	49	38
21/07/2021 12:30	61	37	46	36	51	35	62	41	51	40
21/07/2021 12:45	60	35	43	35	52	35	61	40	50	39
21/07/2021 13:00	59	37	39	34	51	35	61	38	52	39
21/07/2021 13:15	60	39	45	35	51	35	61	39	50	39
21/07/2021 13:30	62	38	44	36	51	35	62	38	50	40
21/07/2021 13:45	60	37	43	36	53	35	62	42	50	37
21/07/2021 14:00	61	38	45	36	51	36	62	41	50	37
21/07/2021 14:15	61	39	47	38	54	37	62	38	51	39
21/07/2021 14:30	61	37	53	39	52	36	63	45	51	39
21/07/2021 14:45	62	40	57	39	52	37	63	45	51	40
21/07/2021 15:00	-	-	51	38	50	37	63	41	-	-
21/07/2021 15:15	-	-	45	38	52	37	62	42	-	-
21/07/2021 15:30	-	-	45	39	53	38	64	43	-	-
21/07/2021 15:45	-	-	49	40	51	38	64	43	-	-
21/07/2021 16:00	-	-	-	-	-	-	64	46	-	-
21/07/2021 16:15	-	-	-	-	-	-	64	46	-	-
21/07/2021 16:30	-	-	-	-	-	-	64	46	-	-
21/07/2021 16:45	-	-	-	-	-	-	63	43	-	-



APPENDIX 11-1

PHOTOMONTAGE ASSESSMENT TABLES

1.

PHOTOMONTAGE ASSESSMENT TABLES

This document should be read in conjunction with the Volume 2 photomontage booklet forming Volume 2 of this ELAR. The following images are shown in the Photomontage Booklet for each viewpoint location:

- **Baseline VVM:** Shows the baseline landscape/streetscape conditions as it currently exists in a do-nothing scenario.
- **Proposed VVM;** Shows a scaled render of the Proposed Development within the current landscape/streetscape.
- **Proposed VVM & Cumulative Wirelines:** Shows the photomontage as presented in the 'Proposed VVM' view; as well as wirelines indicating the relative physical position and scale of the Proposed Development irrespective of screening. The wirelines of the various above ground development elements are colour coded with the following:
 - **Red Wireline = Site A** - Proposed Strategic Employment Zone
 - **Blue Wireline = Site B** - Proposed Healthcare Facilities
 - **Purple Wireline = Site C** - Proposed Strategic Housing Development

Less visually prominent elements of the Proposed Development such as the MOOR, Kildare Bridge works and Moyglare Bridge are included in the photomontages. In order to ensure the photomontage booklet is clean and coherent, no wirelines have been added around these surface features within the 'Proposed VVM & Cumulative Wirelines', as this would have resulted a relatively confusing visual output. Where they will be seen, the MOOR, the Kildare Bridge works and the Moyglare Bridge are included in the photomontages and are assessed within the assessment narrative in the photomontage assessment tables below.

The following tables demonstrate a structured assessment of the 17 no. photomontages (15 No. Viewpoints) included in the Volume 2 photomontage booklet. The assessment follows the 'Assessment of Visual Effects' methodology included in Section 11.2.4 in Chapter 11. The likely significance of visual effects occurring at each viewpoint is determined in each table by balancing viewpoint (and receptor) sensitivity with the magnitude of change. A residual visual effect accounting for mitigating factors is stated in the final row of each table, following the EPA (2022) Definition of Significance.

The viewpoint assessments account for the potential of cumulative visual effects, such as inter-visibility between the Proposed Development elements of Site A (Strategic Employment Zone), Site B (Healthcare Facilities), Site C (SHD), The MOOR, Kildare Bridge works and the Moyglare Bridge. Where applicable, other permitted and planned developments of similar scope and scale within the surrounding landscape (mapped in Section 11.5 and listed in Chapter 2) will be considered in the judgement of visual effects.

Viewpoint 1 – Residential Receptor on the R157 north-east	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View west from a residential property on the R157 Regional Road as it approaches Site A and Maynooth from the north-east. ➤ This viewpoint is located on the verge of the R157 Regional Road approximately 205 metres east of the nearest proposed building (Office Block C) within Site A. ➤ Field of View: West-south-west ➤ Grid Ref (ITM):E: 695,157; N: 739,327
Visual Receptors and their sensitivity	A Single Residential Receptor – High/Medium Motorised traffic on the R157 – Low
Description of 'Baseline VVM'	The Baseline image shows medium ranging views across a flat field of agricultural pasture. Site A of the Proposed Development is located beyond the mature treeline demarking the field boundary in the background of the image. A driveway entrance to a residential dwelling forms the foreground of the image. The R157 Regional Road is visible to the left tracking away from the viewpoint to the south-west. Approximately 300 metres (~150m to 400 metres at different locations) metres of relatively dense deciduous woodland separates Site A from Carton Demesne to the south-east, the westerly extent of which is seen in the left background of the baseline image beyond the R157. The view is of a rural character, however, aesthetic qualities of the landscape are diminished by the presence of the R157, utility poles and overhead lines seen through the view.
Proposed Photomontage Description	The second and third storeys of the proposed office blocks of Site A are visible above the treeline in the background of the photomontage. The ground floor and surface infrastructure of Site A are obscured from view by the intervening vegetation. The Proposed Development comprises a relatively small spatial extent within this view and although the proposed office blocks raise the skyline in the centre of the view, they do not obstruct any longer ranging landscape views. As a background addition to the existing view, the Proposed Development slightly alters the character and composition of the existing landscape.
Cumulative Effects	As shown by the cumulative wireline image, no other infrastructure of the Proposed Development will not be visible from this viewpoint and no cumulative effects will occur.
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	“Medium: Includes viewers who may have some susceptibility to a change in view. Viewers such as residents in medium proximity but who do not have views focused in the direction of the Proposed Development or whose views are not of a particularly scenic quality; those from views which are not designated but may have local recreational uses or those travelling along routes or at view which are considered moderately scenic.”
Magnitude of Change (Definition, See Section 11.2.4)	“Moderate: The change in the view may involve partial obstruction of existing view or partial change in character and composition of the baseline through the introduction of new elements or removal of existing elements. Likely to occur at locations where the development is partially visible over a moderate or medium extent, and which are not in close proximity to the development. Change may be readily noticeable but not substantially different in scale and character from the surrounding setting.”

Viewpoint 1 – Residential Receptor on the R157 north-east	
Significance of Effect (Definition, See Section 11.2.4)	Medium x Moderate = Moderate/Minor = Slight (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends
Mitigation Factors	<ul style="list-style-type: none"> ➤ The Proposed Development is only visible from the gable end of the residential property where this photomontage was captured. The primary residential visual amenity of this property is directed to the north-west and south-east, away from the Proposed Development. ➤ This is the only residential receptor which will have any visibility of the proposed infrastructure of Site A. ➤ The proposed infrastructure of Site A aligns with the zoning of these lands as 'E1 – Strategic Employment Zone' in the Maynooddy Environs Written Statement (2021-2027). ➤ The impact of vegetation screening has seasonal variation. In order to show a worst-case scenario for visual effects, all photomontages were captured during the winter months. As demonstrated by images within Chapter 11 (See Section 11.4.1.3), roadside vegetation on the R157 will be much denser during summer months when existing hedges and deciduous trees are full of foliage. In this regard, the distant deciduous treeline and vegetation in the foreground of the view will greatly reduce visibility of the Proposed Development in summer months and reduce the significance of visual effects from this location.
Residual Effect (incl. mitigating factors)	Slight (EPA, 2022) An effect which causes noticeable changes in the character of the environment without affecting its sensitivities

Viewpoint 2 – R157 Approach from the north-east	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View west from the R157 Regional Road as it approaches Site A and Maynooth from the north-east. ➤ This viewpoint is located on the verge of the R157 Regional Road approximately 105 metres east of the nearest proposed building (Office Block C) within Site A. ➤ Field of View: West ➤ Grid Ref (ITM) E: 695,078; N: 739,238
Visual Receptors and their sensitivity	Motorised traffic on the R157 - Low
Description of 'Baseline VVM'	The baseline view is directed along the R157 Regional Road within a landscape of rural character. The eye is drawn along the path of the roadway which is enclosed by hedgerows and a stone wall. A tall treeline is visible in the middle distance. No long ranging views are available from this location and the view does not comprise any landscape features of unique aesthetic value.
Proposed Photomontage Description	The second and third storeys of the proposed office blocks of Site A are visible above the treeline in the background of the view. The ground floor and surface infrastructure of the proposal such as the proposed car parks and internal road network are obscured from view by the intervening vegetation. The mass and bulk of the proposed office buildings raise the skyline in the centre of the view and alter the composition and character of the landscape to that of a semi-urban, semi-rural landscape.
Cumulative Effects	As shown by the cumulative wireline image, no other infrastructure of the Proposed Development will not be visible from this viewpoint and no cumulative effects will occur.
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	"Low: Includes viewers engaged in activities where the focus is not on the landscape or view. These including those travelling along a busy route, viewers at work or engaged in sport not related to views or experience of the landscape."
Magnitude of Change (Definition, See Section 11.2.4)	"Moderate: The change in the view may involve partial obstruction of existing view or partial change in character and composition of the baseline through the introduction of new elements or removal of existing elements. Likely to occur at locations where the development is partially visible over a moderate or medium extent, and which are not in close proximity to the development. Change may be readily noticeable but not substantially different in scale and character from the surrounding landscape."
Significance of Effect (Definition, See Section 11.2.4)	Low x Moderate = Minor = Slight (EPA, 2022) An effect which causes noticeable changes in the character of the environment without affecting sensitivities
Mitigation Factors	<ul style="list-style-type: none"> ➤ The proposed infrastructure of Site A aligns with the zoning of these lands as 'E1 – Strategic Employment Zone' in the Maynooth Environs Written Statement (2021-2027). ➤ The impact of vegetation screening has seasonal variation. The photomontages within the Volume 2 booklet were captured during the winter months. As demonstrated by images within Chapter 11 (See

Viewpoint 2 – R157 Approach from the north-east	
	Section 11.4.1.3), roadside vegetation on the R157 will be much denser during summer months when existing hedges and deciduous trees are full of foliage. In this regard, the distant deciduous treeline will greatly reduce visibility of the Proposed Development from Viewpoint 02 in summer months and reduce visual effects from this location.
Residual Effect (incl. mitigating factors)	Slight (EPA, 2022) An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.

Viewpoint 3 – Queen Victoria Gate on the R157	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View west from Queen Victoria Gate, an old disused access gate into the woodland within the Carton Estate east of the R157 Regional Road. ➤ This viewpoint is located within the EIAR Study Boundary and at the south-eastern extent of Site A on the verge of the R157 Regional Road where there is a gap in the roadside hedgerow. ➤ Field of View: West ➤ Grid Ref (ITM) E: 694,937; N: 739 141
Visual Receptors and their sensitivity	Motorised traffic on the R157 – Low
Description of 'Baseline VVM'	The baseline view looks across the R157 Regional Road through a gap in the existing hedgerows to a flat agricultural field beyond. Overhead lines and utility poles are man-made features visible along the roadside. As demonstrated by the baseline image, distant visibility is limited in the flat landscape. The mature woodland surrounding Moygaddy House can be seen in the middle distance and form the background of the view.
Proposed Photomontage Description	<p>The proposed MOOR and proposed internal roads of Site A are visible in the foreground of the photomontage. Two of the proposed office blocks of Site A are clearly visible in the centre of the photomontage. Due to the proximity of this viewpoint, the proposed office blocks are seen as large and prominent features of the landscape. The addition of the office blocks, new roads, car parks, pedestrian walkway and cycleway alter the character of the existing view to that of a semi-urban, semi-rural landscape.</p> <p>The most easterly office block (Block C) is not visible in the field of view presented in the photomontage but would be fully seen as a prominent feature from this location if the view was focussed in a northerly direction. This has been factored into the rating of 'magnitude of change' and visual effects determined for this viewpoint.</p>
Cumulative Effects	As shown by the cumulative wireline image, no other infrastructure of the Proposed Development will not be visible from this viewpoint and no cumulative effects will occur.
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	"Low: Includes viewers engaged in activities where the focus is not on the landscape or view. These including those travelling along a busy route, viewers at work or engaged in sport not related to views or experience of the landscape
Magnitude of Change (Definition, See Section 11.2.4)	Substantial: Substantial change, where the proposals would result in large-scale, prominent or very prominent change, leading to substantial obstruction of existing view or complete change in character and composition of the baseline though removal of key elements or addition of uncharacteristic elements which may or may not be visually discordant. This includes viewpoints where the Proposed Development is fully or almost fully visible over a wide extent, at close proximity to the viewer. This change could be long term or of a long duration.
Significance of Effect (Definition, See Section 11.2.4)	<p>Low x Substantial = Moderate/Minor = Moderate (EPA, 2022)</p> <p>An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends</p>

Viewpoint 3 – Queen Victoria Gate on the R157	
Mitigation Factors	<ul style="list-style-type: none"> ➤ The proposed infrastructure of Site A aligns with the zoning of these lands as 'E1 – Strategic Employment Zone' in the Maynooth Environs Written Statement (2021-2027). ➤ Proposed planting as part of the landscape plan softens the visual impact of the three and five story office blocks, improving the integration of the Proposed Development within the existing rural landscape.
Residual Effect (incl. mitigating factors)	<p>Moderate (EPA, 2022)</p> <p>An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends.</p>

Viewpoint 04A – View focussed on Site A from Existing Junction (R157 & L2214-3)	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ Viewnorth towards Site A – proposed Strategic Employment Zone from the existing junction between the L2214-3 Local Road and R157 Regional Road. ➤ This viewpoint is located on the verge of the L2214-3 Local Road, approximately 62 metres south of the nearest proposed Office Block building of Site A at its closest point. ➤ Field of View: north-north-west ➤ Grid Ref (ITM): E: 694,728; N: 739,023
Visual Receptors and their sensitivity	<p>Motorised traffic on the L2214-3 - Low</p> <p>Motorised traffic on the R157 – Low</p>
Description of 'Baseline VVM'	<p>The baseline view looks across the L2214-3 local road where it joins the R157 Regional Road which tracks around a bend away from the viewpoint to the right of the image. This is a relatively recognisable location due to the collection of traffic signage at this junction. A field of agricultural grassland is seen through roadside vegetation in the centre and left of the image. Dense woodland extends approximately 400 metres east from the wall seen to the right of the photomontage. This woodland screens any visibility of this location or the Proposed Development from Carton House and Carton Demesne which are sensitive receptors to the east.</p>
Proposed Photomontage Description	<p>All three office blocks of Site A are clearly visible from this location. Due to the proximity of this viewpoint, they are seen as large and prominent features of the landscape. The proposed north-westerly section of the MOOR is visible to the left of the photomontage and the proposed realigned R157 cuts across the photomontage to from left to right. The removal of existing vegetation and addition of the office blocks, new roads, pedestrian walkways and cycleways alter the character of the existing view to that of a semi-urban, semi-rural landscape.</p>
Cumulative Effects	<p>Photomontage Viewpoint 4B (seen next in the photomontage booklet and described in the following table) was captured from the roadside verge adjacent to the signage visible in the right foreground of 'Baseline View', the view in that photomontage is focussed in the opposite direction – to the south (Viewpoint 4B). As shown by Viewpoint 4B, the infrastructure of the proposed Site B - Healthcare Facilities will be partially visible beyond a distant treeline. Upgrades to the local road forming the proposed MOOR will also be visible to the left of the photomontage as it tracks west towards Site C, Moygaddy House and Moygaddy Castle ruins. In this regard, cumulative visual effects will occur and have been factored into the rating of visual effects given to this viewpoint.</p>
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	<p>"Low: Includes viewers engaged in activities where the focus is not on the landscape or view. These including those travelling along a busy route, viewers at work or engaged in sport not related to views or experience of the landscape</p>
Magnitude of Change (Definition, See Section 11.2.4)	<p>"Substantial: Substantial change, where the proposals would result in large-scale, prominent or very prominent change, leading to substantial obstruction of existing view or complete change in character and composition of the baseline though removal of key elements or addition of uncharacteristic elements which may or may not be visually discordant. This</p>

Viewpoint 04A – View focussed on Site A from Existing Junction (R157 & L2214-3)	
	includes viewpoints where the Proposed Development is fully or almost fully visible over a wide extent, at close proximity to the viewer. This change could be long term or of a long duration.”
Significance of Effect (Definition, See Section 11.2.4)	Low x Substantial = Moderate/Minor = Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends
Mitigation Factors	<ul style="list-style-type: none"> ➤ The proposed infrastructure of Site A aligns with the zoning of these lands as ‘E1 – Strategic Employment Zone’ and the ‘indicative road route’ within the Maynooth Environs Written Statement (2021-2027). ➤ Landscape elements such as a large agricultural field and mature vegetation along field boundaries act as a buffer, visually separating the proposed infrastructure of Site A, Site B and Site C, therefore mitigating the potential for significant cumulative visual effects. ➤ Proposed planting as part of the landscape plan softens the visual impact of the three and five story office blocks, enabling the Proposed Development to better assimilate within the existing rural landscape.
Residual Effect (incl. mitigating factors)	Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends.

Viewpoint 04B – View focussed on Site B from Existing Junction (R157 & L2214-3)	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View south-west towards Site B – proposed Healthcare Facilities from the R157 Regional Road at the existing junction with the L2214-3 Local Road. ➤ This viewpoint is on the verge of the R157 Regional Road approximately 250 metres north of the nearest proposed building of Site B (Primary Care Centre building) at its closest point. ➤ This viewpoint is located at the southern extent of Site A, across the road from Viewpoint 4A (Assessed in the previous table above). ➤ Field of View: south-west ➤ Grid Ref (ITM) E: 694,745; N: 739,033
Visual Receptors and their sensitivity	<p>Motorised traffic on the L2214-3 - Low</p> <p>Motorised traffic on the R157 - Low</p>
Description of 'Baseline VVM'	<p>The baseline view looks south-west across the existing junction between the R157 Regional Road which seen to the left of the image and the L2214-3 Local Road, seen to the right. The junction is located at a bend in the R157 as it tracks along the boundary wall of Carton Demesne which is seen to the very left of the view. The thin roadside verges are lined by mature deciduous trees and low hedgerows. Beyond the junction there are medium range views across a flat field of grazing pasture. A line of dense woodland forms the distant field boundary in the background of this view.</p>
Proposed Photomontage Description	<p>The proposed MOOR is visible tracking across the foreground of the photomontage, loss of existing roadside hedgerows and trees has opened up views across the agricultural grasslands in the middle distance. An access path to woodlands of Carton Demesne is visible in the left foreground of the photomontage. Infrastructure of Site B is just discernible beyond the distant treeline, it is substantially screened from view by the intervening vegetation. Elevated elements of the proposed PCC is just visible through the trees to the left of the photomontage. The proposed nursing home (the light-coloured building) is visible beyond the distant treeline in the centre of the photomontage, the ground floor and surface elements are obscured from view by the treeline.</p>
Cumulative Effects	<p>Photomontage Viewpoint 4A (seen in the booklet and described in the previous table) was captured from the roadside verge visible in the centre foreground of this photomontage (Viewpoint 4B). As shown by viewpoint 4A, the infrastructure of Site A and MOOR will be visible directly behind this photomontage. As there will be substantial change to the landscape and visual amenity to the north of this viewpoint, cumulative visual effects will occur and have been factored into the rating of visual effects given to this viewpoint.</p> <p>As shown by the indicative (purple) wireline image, Site C is located beyond the treelines to the west (right) of the photomontage. However, due to the intervening screening, visibility is likely to be very limited and no significant cumulative visual effects will arise in relation to the Site C SHD from this viewpoint.</p>
Sensitivity of Visual Receptor(s)	<p>"Low: Includes viewers engaged in activities where the focus is not on the landscape or view. These include those travelling along a busy route,</p>

Viewpoint 04B – View focussed on Site B from Existing Junction (R157 & L2214-3)	
<i>(Definition, See Section 11.2.4)</i>	viewers at work or engaged in sport not related to views or experience of the landscape.
Magnitude of Change <i>(Definition, See Section 11.2.4)</i>	“Moderate: The change in the view may involve partial obstruction of existing view or partial change in character and composition of the baseline through the introduction of new elements or removal of existing elements. Likely to occur at locations where the development is partially visible over a moderate or medium extent, and which are not in close proximity to the development. Change may be readily noticeable but not substantially different in scale and character from the surroundings and wider setting.”
Significance of Effect <i>(Definition, See Section 11.2.4)</i>	Low x Moderate = Minor = Slight (EPA, 2022) An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
Mitigation Factors	<ul style="list-style-type: none"> ➤ Landscape elements such as the mature vegetation along the field boundaries and the field itself act as a buffer, visually separating the proposed infrastructure of Site A, Site B and Site C, therefore mitigating the potential for significant cumulative visual effects. ➤ The Proposed Development is sited in a location zoned for its purpose; the Site B Healthcare Facilities are sited in lands zoned for ‘G1 – Community Infrastructure’ in the Maynooth Environs Written Statement (2021-2027). ➤ As demonstrated by images within Chapter 11 (See Plate 11-14; Plate 11-51; & Plate 11-52) vegetation will be much denser during summer months when existing hedges and deciduous trees are full of foliage. In this regard, visibility of the Proposed Development will have some seasonal variation. It is unlikely that the proposed Healthcare Zone at Site B would be visible from this viewpoint if the photomontage was captured from this location during the summer months, therefore there would be no visual impact during that time.
Residual Effect (incl. mitigating factors)	Slight (EPA, 2022) An effect which causes noticeable changes in the character of the environment without affecting its sensitivities

Viewpoint 5 – Residential Receptors on the L2214 north-west	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View south-south-east from the L2214 Local Road as it approaches The Proposed Development from the north. ➤ This viewpoint represents a small cluster of residential receptors situated on this local road. ➤ This viewpoint is located approximately 250 metres north of the EIAR Study Boundary. ➤ Field of View: south-south-east ➤ Grid Ref (ITM):E: 69 4,494;N: 74 0,58
Visual Receptors and their sensitivity	Cluster of Residential Receptors – High Motorised traffic on the R157 – Low
Description of 'Baseline VVM'	The Baseline view is of a rural character. The image shows open views across flat fields of grazing pasture. The verge of the L2214 Local Road is seen to the right of the view. The three residential dwellings seen in the middle distance are located off the local road in a linear arrangement. Site A of the Proposed Development is located beyond the mature treelines demarking distant field boundaries in the background centre of the image. A large electricity pylon is seen above the treeline in the background left of the view, utility poles and overhead lines are also prominent features along the roadway.
Proposed Photomontage Description	As indicated by the red wireline in the photomontage, the proposed Development will be almost entirely screened from view behind the distant treelines. The most western rooftops of Office Block A may be just discernible above the treeline, no other elements of the Proposed Development can be seen from this location.
Cumulative Effects	As shown by the cumulative wireline image, Site B and Site C of the Proposed Development will not be visible from this viewpoint. It is not anticipated that the MOOR will be visible from this location and no cumulative visual effects will occur.
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	“High: Includes viewers at designated views or landscapes. Viewers such as residents in close proximity to the viewpoint who have primary views that will be in the direction of the development that may not necessarily be of a particularly scenic quality; viewers at well-known heritage or popular tourist or recreational areas, viewers along scenic or tourist routes.”
Magnitude of Change (Definition, See Section 11.2.4)	“Negligible: Any change would only be barely distinguishable from the status quo “do-nothing scenario” in the surroundings. The composition and character of the view would be substantially unaltered, approximating to little or no change”
Significance of Effect (Definition, See Section 11.2.4)	High x Negligible = Minor = Slight (EPA, 2022) An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
Mitigation Factors	<ul style="list-style-type: none"> ➤ The primary residential visual amenity of these properties is directed east, not directly towards the Proposed Development which is located to the south-south-east.

Viewpoint 5 – Residential Receptors on the L2214 north-west	
	<ul style="list-style-type: none"> ➤ The proposed infrastructure of Site A aligns with the zoning of these lands as 'E1 – Strategic Employment Zone' in the Maynooth Environs Written Statement (2021-2027). ➤ The impact of vegetation screening has seasonal variation. The photomontages within the Volume 2 booklet were captured during the winter months. In general, vegetation will be much denser during summer months when existing hedges and deciduous trees are full of foliage. In this regard, the distant deciduous treeline will completely obscure the Proposed Development from view in summer months causing no visual effects from this location.
Residual Effect (incl. mitigating factors)	<p>Not Significant (EPA, 2022)</p> <p>An effect which causes noticeable changes in the character of the environment but without significant consequences.</p>

Viewpoint 06 - Site B from the R157 Regional Road	
Viewpoint Description and Details	<ul style="list-style-type: none"> > View south-west towards Site B from the R157 Regional Road. > This viewpoint is located on the verge of a public road, within the EIAR Study Boundary, immediately adjacent to the proposed vehicular access road into Site B. > Field of View: south-west > Grid Ref (ITM) E: 694707, N: 7 38814
Visual Receptors and their sensitivity	Motorised traffic on the R157 – Low
Description of 'Baseline VVM'	Beyond the roadside verge of the R157, the baseline image shows the existing eastern field boundary of Site B comprising low timber fencing and deciduous vegetation. The mature woodland that forms the northern boundary of Site B is visible to the right of the image. From this specific location on the R157, there is a gap in the roadside screening and a relatively unobstructed view into the agricultural field where Site B is located. Several residential developments are just discernible in the distant background of the view where they are located beyond the valley of lower ground along the Rye Water.
Proposed Photomontage Description	<p>The proposed Primary Care Centre (PCC) is visible in the foreground of the photomontage as well as the proposed vehicular access route and junction with the R157. The proposed nursing home is visible beyond the PCC in the background right of the photomontage, although it is softened by the proposed tree planting along the access road.</p> <p>The proposed PCC is a three-storey building viewed in close proximity to this viewpoint (approximately 37 metres at its closest point), due to its scale and mass it is seen as a substantial feature of the photomontage. The proposed PCC causes some visual obstruction, blocking longer ranging views of the landscape beyond. The Proposed Development alters the baseline character and composition of the view from that of a rural landscape to one of a more urban nature.</p>
Cumulative Effects	The proposed road upgrades to the R157 as part of the MOOR and new junction will be visible along the road to the north (right of photomontage view). The Proposed Kildare bridge works may have some minor visibility within views to the south from this viewpoint, although it is likely to be screened from view by the intervening roadside vegetation. From this viewpoint there will be some minor visual connectivity with the nearest proposed Office Block of Site A which will be visible to the north (right of photomontage field of view), although visual effects will be mitigated by distance. A view of the Proposed Development at Site A from the south are presented in Photomontage Viewpoint 04A and visual effects are assessed in a table previously. Site C and Moyglare Bridge will not be visible from this viewpoint.
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	Low: Includes viewers engaged in activities where the focus is not on the landscape or view. These including those travelling along a busy route, viewers at work or engaged in sport not related to views or experience of the landscape.

Viewpoint 06 - Site B from the R157 Regional Road	
Magnitude of Change (Definition, See Section 11.2.4)	Substantial: Substantial change, where the proposals would result in large-scale, prominent or very prominent change, leading to substantial obstruction of existing view or complete change in character and composition of the baseline though removal of key elements or addition of uncharacteristic elements which may or may not be visually discordant. This includes viewpoints where the Proposed Development is fully or almost fully visible over a wide extent, at close proximity to the viewer. This change could be long term or of a long duration.
Significance of Effect (Definition, See Section 11.2.4)	Low x Substantial = Moderate/Minor = Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends
Mitigation Factors	<ul style="list-style-type: none"> ➤ Receptors will only have this view momentarily and the road is not oriented towards the site. ➤ The Proposed Development is sited in a location zoned for its purpose; the Site B Healthcare Facilities are sited in lands zoned for 'G1 – Community Infrastructure'. ➤ Proposed infrastructure at Site A and Site B will not be visible within the same field of view from this location. Cumulative visual effects are mitigated by distance and screening.
Residual Effect (incl. mitigating factors)	Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends

Viewpoint 07 – Kildare Bridge	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View north-west towards Site B and Kildare Bridge from a location on the R157 Regional Road. ➤ This viewpoint is located on the public footpath approximately 10 metres south of the existing Kildare Bridge structure and the location/origin of County Kildare Designated Scenic View RW-4. ➤ This viewpoint was chosen south of the designated scenic view in order to show a wider perspective and more open view towards the Proposed Development, set back from existent roadside screening. ➤ Field of View: north-north-west ➤ Grid Ref (ITM): E: 694671, N: 738,561
Visual Receptors and their sensitivity	County Kildare Designated Scenic View RW-4 (in close proximity) - High Motorised traffic on the R157 - Low
Description of 'Baseline VVM'	The existing Kildare Bridge structure and the R157 is visible in the foreground of the view. As shown in the baseline image there is limited safe pedestrian access to the western side of the bridge. The verge of the road either side of the bridge is lined by tall hedges and deciduous trees. The road and landform rises to the north, away from the viewpoint and bridge over the Rye Water. The agricultural field comprising Site B is visible beyond the bridge in the centre of the image.
Proposed Photomontage Description	<p>The cycleway/pedestrian access is visible as part of the MOOR along the verge of the existing R157. The Proposed Kildare Bridge works is visible adjacent to the stone wall of the existing Kildare Bridge structure in the left foreground. The proposed bridge itself has limited visibility from this viewpoint as it is located beyond the stone wall parapet of the existing Kildare Bridge Structure.</p> <p>Due to its elevated position from this perspective, the three storey Primary Care Centre (PCC) of Site B is a relatively prominent feature in the background-right of the photomontage beyond the treeline existent along the verge of the R157. The two-storey proposed nursing home is visible in the centre background of the photomontage, although a large portion of it is substantially screened from view by existing vegetation. The proposed car park is located upon the flat ground between the two proposed healthcare buildings. As shown by the photomontage, visibility of cars (and other element of the Proposed Development within Site B) will be softened by the proposed planting of native trees along the proposed recreational walking route to the south of the site.</p>
Cumulative Effects	<p>From this viewpoint location the Proposed Development at Site A will not be visible. From this viewpoint the R157 heads north and bends slightly to the north-north-east as it passes the entrance to proposed Site B. The dense woodland and topographical characteristics will therefore screen Site A (to the right of the field of view presented in the photomontage) from view. As shown by the indicative cumulative wireline image, Site C will not be visible from this viewpoint.</p> <p>The Permitted Dunboyne Road housing development is located approximately 200 metres south-west of this viewpoint, however no visibility of this development is expected from this viewpoint due to screening from intervening landform and vegetation. Plans for the proposed Maynooth</p>

Viewpoint 07 – Kildare Bridge	
	Eastern Ring Road (MERR – P82019.08) which is a transport network linking with the Dunboyne roundabout, and associated works for this development will likely be visible from this viewpoint, however, cumulative visual effects will not be significant.
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	<p>“Medium: Includes viewers who may have some susceptibility to a change in view. Viewers such as residents in medium proximity but who do not have views focused in the direction of the Proposed Development or whose views are not of a particularly scenic quality; those from views which are not designated but may have local recreational uses or those travelling along routes or at view which are considered moderately scenic.”</p> <p>Although this photomontage viewpoint is located in proximity (within 10m) to a designated scenic view, on-site appraisal determined that, on balance, this viewpoint does not represent receptors of high sensitivity and due to limited pedestrian access and height of the walls on the existing Kildare Bridge it is unlikely that receptors will come to this location to appreciate the designated scenic views.</p>
Magnitude of Change (Definition, See Section 11.2.4)	<p>Moderate: The change in the view may involve partial obstruction of existing view or partial change in character and composition of the baseline through the introduction of new elements or removal of existing elements. Likely to occur at locations where the development is partially visible over a moderate or medium extent, and which are not in close proximity to the development. Change may be readily noticeable but not substantially different in scale and character from the surroundings and wider setting.</p>
Significance of Effect (Definition, See Section 11.2.4)	<p>Medium x Moderate = Moderate/Minor = Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends</p>
Mitigation Factors	<ul style="list-style-type: none"> ➤ The designated scenic views are from the existing Kildare Bridge and are oriented directly east and directly west along the Rye Water, in a direction perpendicular to the Proposed Development. Therefore, the Proposed Development is not the focus of the designated scenic view from this location and receptors will only have this view (shown in the photomontage) momentarily as they walk or drive across the existing Kildare Bridge. ➤ Whilst nice views of the Rye Water can be seen from above the wall on the existing Kildare Bridge (presented in Plate 11-35 & Plate 11-36 of Chapter 11), a pedestrian (receptor) walking across the bridge (or within a car driving past) would struggle to experience these scenic views due to the height of the stone walls on the bridge which have been constructed higher than average human eye height. Unless a receptor is either very tall or within an elevated vehicle these scenic views cannot be experienced. ➤ The proposed Kildare Bridge works and pedestrian and cycleway will enhance the accessibility of the designated scenic views (RW-4) available to the west ➤ As demonstrated by images within Chapter 11 (Plate 11-37, Plate 11-38), tall and dense vegetation will provide visual screening along much of the R157 during summer months when existing hedges and deciduous trees are full of foliage. The existing roadside screening, as well as

Viewpoint 07 – Kildare Bridge	
	<p>proposed planting as part of the landscape plan will restrict visibility and mitigate visual effects from this viewpoint location.</p> <ul style="list-style-type: none"> ➤ The Proposed Development is sited in a location zoned for its purpose; Site B Healthcare Facilities is sited in lands zoned for 'G1 – Community Infrastructure'.
Residual Effect (incl. mitigating factors)	<p>Slight (EPA, 2022)</p> <p>An effect which causes noticeable changes in the character of the environment without affecting sensitivities</p>

Viewpoint 08 – Lyreen Housing Estate	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View north-east from the Lyreen Housing Development in the townland of Mariavilla. ➤ This viewpoint is located adjacent to an area of recreational green space at the eastern extent of the Lyreen Housing Development. ➤ The viewpoint is approximately 500 metres south-west of the proposed nursing home in Site B. ➤ Field of View: north-east ➤ Grid Ref (ITM) E: 694,051; N: 738,522
Visual Receptors and their sensitivity	<p>Residential Receptors - The Lyreen Housing Estate – High/Medium</p> <p>Park users and Pedestrians along the River Lyreen – High/Medium</p>
Description of 'Baseline VVM'	<p>The baseline view shows a relatively long ranging view across the Rye Water Valley where the River Lyreen joins the Rye Water. Several small loughs which are part of the Lyreen angling centre are visible in the middle distance amongst bushes and riparian vegetation. The park and boundary fencing of the Lyreen Housing estate is seen in the foreground left of the image. An agricultural field which is the location of Site B is seen in the distance beyond the low-lying ground surrounding the watercourses and waterbodies. Tall mature woodland is visible across the background of the view restricting longer ranging views of the wider landscape</p>
Proposed Photomontage Description	<p>The proposed buildings of the Site B are visible in the background centre of the photomontage, they are enclosed in a backdrop of tall woodland. The proposed buildings of Site B (nursing home and PCC) comprise a wide horizontal extent of the view, however, they do not raise the height of the skyline and are neatly framed within the surrounding woodland. Surface elements of Site B are not discernible at this distance. Due to its siting on elevated ground beyond Site B, the Proposed Development at Site A is visible in the background centre-left of the Photomontage. The proposed five storey Office Block A is a prominent feature as its profile raises the skyline within the landscape. Lower elements of Site A will be obscured from view by intervening vegetation. Elevated ridgelines of housing infrastructure of Site C is just visible to the far left of the photomontage.</p>

Viewpoint 08 – Lyreen Housing Estate	
	Cumulatively, all elements of the Proposed Development will alter the composition and character of this view, but will not detract value from its more aesthetic attributes such as the riparian landscape visible in the middle distance.
Cumulative Effects	<p>The proposed Site C SHD is located beyond the Lyreen Housing estate located to the left (west-north-west) of the photomontage. It will have very limited visibility from this location.</p> <p>There will be combined successional visibility of the Proposed Development with several other SHD developments located to the south (Proposed Moyglare Road – ABP 314337) and east (Permitted Dunboyne Road ABP 310865-21) of this viewpoint. These developments will be partially visible in opposing fields of view to the Proposed Development. They will add to the existing residential and suburban character of the landscape immediately east and west of this viewpoint. These developments and the Proposed Development will have a cumulative effect aligning with the current trend of urbanisation in this area. Considering the separation distances and screening elements obscuring full intervisibility between the Proposed Development and these two developments, significant cumulative visual effects are not likely to occur.</p>
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	<p>Although residential receptors are generally deemed to be of high sensitivity, the separation distance and orientation of houses are such that primary residential visual amenity is not directed towards the Proposed Development. On balance, sensitivity of this viewpoint is deemed to be of medium sensitivity.</p> <p>“Medium: Includes viewers who may have some susceptibility to a change in view. Viewers such as residents in medium proximity but who do not have views focused in the direction of the Proposed Development or whose views are not of a particularly scenic quality; those from views which are not designated but may have local recreational uses or those travelling along routes or at view which are considered moderately scenic.”</p>
Magnitude of Change (Definition, See Section 11.2.4)	<p>“Moderate: The change in the view may involve partial obstruction of existing view or partial change in character and composition of the baseline through the introduction of new elements or removal of existing elements. Likely to occur at locations where the development is partially visible over a moderate or medium extent, and which are not in close proximity to the development. Change may be readily noticeable but not substantially different in scale and character from the surroundings and wider setting.”</p>
Significance of Effect (Definition, See Section 11.2.4)	<p>Medium x Moderate = Moderate/Minor = Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends</p>
Mitigation Factors	<ul style="list-style-type: none"> ➤ The woodland surrounding the Proposed Development and proposed planting at Site B effectively absorb the Proposed Development within the landscape and it does not obstruct views of aesthetic landscape features such as the loughs visible in the middle distance. ➤ In order to capture a completely unobstructed view of the Proposed Development from this perspective, the photomontage was captured outside of the Lyreen Housing estate boundary (seen to the left of the

Viewpoint 08 – Lyreen Housing Estate	
	<p>photomontage). Visual receptors in the park would therefore have more limited visibility of the Proposed Development than is shown in the photomontage.</p> <ul style="list-style-type: none"> ➤ Orientation of housing in the development (left of the photomontage) is such that most primary residential visual amenity is directed to the south-east and north-west, therefore, not directly focussed in the direction of the Proposed Development reducing the visual impact upon residential receptors. ➤ Visual effects are mitigated by distance and appropriate siting of the various Proposed Development elements within the subject lands aligns with the zoning strategy detailed in the Maynooth Environs Written Statement (2021-2027).
Residual Effect (incl. mitigating factors)	<p>Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends</p>

Viewpoint 09A – View Focused on Site B from Mogaddy House & Moygaddy Castle Ruins	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View south-south-east towards Site B from the L2214-3 Local Road in proximity to Moygaddy House and Moygaddy Castle Ruins. ➤ The viewpoint is located within the EIAR Study Boundary, approximately 295 metres north of the proposed nursing home in Site B at its closest point. ➤ Field of View: south-south-east ➤ Grid Ref (ITM): E: 694,461; N: 739,171
Visual Receptors and their sensitivity	L2214-3 Local Road - Low Nearby Moygaddy Castle Ruins (Cultural Heritage Receptor) – Medium
Description of 'Baseline VVM'	An open view across a flat field of agricultural grassland. The field boundary comprising mature trees and hedges are visible in the middle distance, they partially restrict long ranging views towards distant hills just visible in the background of the view. The pinnacle of an obelisk of Conolly's Folly (located in the townland of Barrogstown West) is just discernible above the treeline in the background left of the baseline image.
Proposed Photomontage Description	The proposed Healthcare Zone is visible from this viewpoint beyond the distant treeline; however, it is substantially screened from view by the intervening vegetation. The upper storeys of the proposed PCC and nursing home buildings are visible amongst the treetops across the centre of the photomontage. The ground floor and surface elements are obscured from view by the vegetation. The proposed PCC building slightly obscures longer ranging views and the lower section of the obelisk at Conollys Folly. The Proposed Development comprises a relatively wide horizontal extent of the view, however, as a whole it is a minor addition to the background of the view and does not fundamentally change the character of the landscape from this viewpoint.
Cumulative Effects	From this viewpoint location the Proposed Development at Site A will not be visible due to the dense woodland to the north of the Local Road – east of Moygaddy House. Site C is located to the west of this viewpoint location and is not visible in the field of view presented in the photomontage. Photomontage 9B was captured from the same location and shows the view west focussed to the west towards Site C where various infrastructure elements of the proposed housing development will be visible beyond a distant treeline, as well as landscaping proposals around Moygaddy castle ruins and the MOOR.
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	<p>The rural agricultural landscape view has some aesthetic value. Also, as Moygaddy Castle Ruins are located in proximity to this viewpoint and has local cultural heritage value. However, as there is currently limited public access to the ruins it is only seen by the public from the Local Road and in essence, the only visual receptors are the local road users. On balance this viewpoint is on balance deemed to be of Medium sensitivity.</p> <p>“Medium: Includes viewers who may have some susceptibility to a change in view. Viewers such as residents in medium proximity but who do not have views focused in the direction of the Proposed Development or whose views are not of a particularly scenic quality; those from views which are not designated but may have local recreational uses or those travelling along routes or at view which are considered moderately scenic.”</p>

Viewpoint 09A – View Focused on Site B from Mogaddy House & Moygaddy Castle Ruins	
Magnitude of Change (Definition, See Section 11.2.4)	“Slight: The proposals would be partially visible or visible at sufficient distance to be perceptible and result in a low level of change in the view and its composition and a low degree of contrast. The character of the view may be altered but will remain similar to the baseline existing situation. This change could be short term or of a short duration.”
Significance of Effect (Definition, See Section 11.2.4)	Medium x Slight = Minor = Slight (EPA, 2022) An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
Mitigation Factors	<ul style="list-style-type: none"> ➤ Due to roadside vegetation screening, receptors will only have this view momentarily and the road is not oriented towards Site B. ➤ The Proposed Development is sited in a location zoned for its purpose; the proposed Healthcare Facilities (which is visible in the photomontage) is sited in lands zoned for ‘G1 – Community Infrastructure’ in the Maynooth Environs Written Statement (2021-2027). ➤ As demonstrated by images within Chapter 11 vegetation will be much denser during summer months when existing hedges and deciduous trees are full of foliage. In this regard, visibility of the Proposed Development will have some seasonal variation. It is likely that visibility of the proposed Healthcare Zone at Site B would have much more limited visibility from this viewpoint if the photomontage was captured from this location during the summer months.
Residual Effect (incl. mitigating factors)	Not Significant (EPA, 2022) An effect which causes noticeable changes in the character of the environment but without significant consequences.

Viewpoint 09B – View Focused on Site C from Mogaddy House & Moygaddy Castle Ruins	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View focused west towards Site C and Moygaddy Castle Ruins from the L2214-3 Local Road adjacent to Moygaddy House. ➤ The viewpoint is located within the ELAR Study Boundary. ➤ Field of View: west-north-west ➤ Grid Ref (ITM): E: 694,447; N: 739,187
Visual Receptors and their sensitivity	L2214-3 Local Road - Low Moygaddy Castle Ruins, a Cultural Heritage Receptor of Local Importance – Medium
Description of 'Baseline VVM'	A short distance view along the local road adjacent to Moygaddy House. The ruins of Moygaddy Castle are visible beyond a low stone wall lining the narrow road. Moygaddy Castle ruins are located within a small field of grassland enclosed by relatively dense woodland.
Proposed Photomontage Description	The Proposed MOOR (upgrades to the existing roadway in this location) is visible in the foreground of the photomontage. A new walking path tracks through the grasslands via Moygaddy Castle ruins to the proposed Scout Den Facility which is seen as a small single storey building within the field enclosure. The two upper storeys of Apartment Block B of the Site C infrastructure are visible above the treeline in the centre background of the photomontage. The addition of the apartment block and Scout Den facility alters the character of the view and slightly intrudes upon the wider setting of this landscape view. The Proposed Development does not obstruct views or alter the integrity of key sensitivities such as the immediate setting of the castle ruins within its field, enclosed by woodland.
Cumulative Effects	As shown in Viewpoint 9A, Site B will also be visible beyond a distant treeline to the south-east and will be a further addition to landscape views from this location.
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	<p>The view of Moygaddy Castle Ruins has local cultural heritage value and some scenic value. However, as there is currently limited public access to the ruins it is only seen by the public from the Local Road and in essence, the only visual receptors are the local road users. On balance this viewpoint is deemed to be of Medium sensitivity.</p> <p>“Medium: Includes viewers who may have some susceptibility to a change in view. Viewers such as residents in medium proximity but who do not have views focused in the direction of the Proposed Development or whose views are not of a particularly scenic quality; those from views which are not designated but may have local recreational uses or those travelling along routes or at view which are considered moderately scenic.”</p>
Magnitude of Change (Definition, See Section 11.2.4)	“Moderate: The change in the view may involve partial obstruction of existing view or partial change in character and composition of the baseline through the introduction of new elements or removal of existing elements. Likely to occur at locations where the development is partially visible over a moderate or medium extent, and which are not in close proximity to the development. Change may be readily noticeable but not substantially different in scale and character from the surroundings and wider setting.”

Viewpoint 09B – View Focused on Site C from Mogaddy House & Moygaddy Castle Ruins	
Significance of Effect (Definition, See Section 11.2.4)	Medium x Moderate = Moderate/Minor = Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends
Mitigation Factors	<ul style="list-style-type: none"> ➤ The Proposed Development infrastructure – (Site C - visible in the photomontage) is appropriately sited, aligned with the land zoning in the Maynooth Environs Written Statement (2021-2027). Proposed housing infrastructure is visible within lands zoned as 'A2 – New Residential' and the proposed Scout Den Facility and landscaped pathways within lands zoned as 'H1 Amenity' which include for development such as <i>“Cycleways / Greenways / Trail Development, Land & Water Based Recreational Activities Open Space, Cultural Activities”</i>. ➤ Provision of safe public rights of way included in the landscape plan, as well as the cycleway and pedestrian route along the MOOR will enhance the accessibility of Moygaddy Castle ruins to the general public and a variety of visual receptors beyond regular commuter traffic along the local road.
Residual Effect (incl. mitigating factors)	Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends

Viewpoint 10 – Carton Demesne	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View north-west towards Site B from Carton Demesne. ➤ The viewpoint is located on a popular walking path (Extension of carton Avenue or 'Lime Walk') through Carton House Golf Course. ➤ Field of View: north-north-west ➤ Grid Ref (ITM): E: 694,945; N: 738,366
Visual Receptors and their sensitivity	Carton House Demesne (Landscape Receptor) - High Carton Avenue (Lime Walk') Walking Route – High Carton House Golf Course – Low/Medium
Description of 'Baseline VVM'	The baseline image shows a relatively short-range view across the fairway and green of Carton House Golf Course towards flat marshy lands around the Rye Water which is located at lower elevation in the middle distance. The landscape is enclosed by mature woodland and hedgerows. There is a narrow corridor of visibility through the trees around the existing Kildare Bridge where the agricultural field of Site B is visible in the background of the image.
Proposed Photomontage Description	The elevated profile of the proposed nursing home (Site B) and a row of housing from Site C are just visible beyond the trees in the background of the photomontage. Most of the Proposed Development is substantially screened from view by the intervening woodland. Kildare Bridge, Site A, The MOOR and Moyglare Bridge are not visible from this location. Due to the set back distance and screening, the Proposed Development is a very small addition to the background of the view and has a very minor alteration to the character of this view.
Cumulative Effects	It is likely that there will be some in-combination visibility of the Proposed Development with the permitted Dunboyne Road SHD which may be partially visible left of the view shown in the photomontage, beyond the distant treeline. The Proposed Development and this proposed SHD would add minor visibility of built infrastructure to the landscape seen from within Carton Demesne, however, cumulative visual effects are not deemed to be significant.
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	"High: Includes viewers at designated views or landscapes. Viewers such as residents in close proximity to the viewpoint who have primary views that will be in the direction of the development that may not necessarily be of a particularly scenic quality; viewers at well-known heritage or popular tourist or recreational areas, viewers along scenic or tourist routes."
Magnitude of Change (Definition, See Section 11.2.4)	"Slight: The proposals would be partially visible or visible at sufficient distance to be perceptible and result in a low level of change in the view and its composition and a low degree of contrast. The character of the view may be altered but will remain similar to the baseline existing situation. This change could be short term or of a short duration."
Significance of Effect (Definition, See Section 11.2.4)	High x Slight = Moderate/Minor = Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends.
Mitigation Factors	<ul style="list-style-type: none"> ➤ This viewpoint is one of the only locations within Carton Demesne where the Proposed Development will be visible. The dense woodland

Viewpoint 10 – Carton Demesne	
	<p>located between the Proposed Development and Carton Demesne obscures the Proposed Development from view elsewhere within the vast majority of Carton Demesne. The Proposed Development will not have any impact on the setting of Carton House or designated scenic amenity along the Rye Water.</p> <ul style="list-style-type: none"> ➤ Receptors walking along Carton Avenue will only have views of the Proposed Development for a brief period as visibility will be greatly restricted to the east of this viewpoint location. ➤ The Proposed Development is not located within any particularly scenic parts of views within the demesne landscape. ➤ The Proposed Development is sited in a location zoned for its purpose; the proposed Healthcare Zone (which is visible in the photomontage) is sited in lands zoned for ‘G1 – Community Infrastructure’ in the Maynooth Environs Written Statement (2021-2027). ➤ As demonstrated by images within Chapter 11, vegetation will be much denser during summer months when existing hedges and deciduous trees are full of foliage. In this regard, visibility of the Proposed Development will have some seasonal variation. It is likely that visibility of the proposed Healthcare Zone at Site B would have much more limited visibility from this viewpoint if the photomontage was captured from this location during the summer months.
Residual Effect (incl. mitigating factors)	<p>Slight (EPA, 2022)</p> <p>An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.</p>

Viewpoint 11 – Moygaddy Local Road T-Junction	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View south-west towards Site C from the T junction between the L6219, L2214 and the L2214-3 Local roads. ➤ The viewpoint is located within the EIAR Study Boundary. ➤ Field of View: South-west ➤ Grid Ref (ITM): E: 694,339; N: 739,258
Visual Receptors and their sensitivity	Local Road Users - Low
Description of 'Baseline VVM'	Beyond the road junction visible in the foreground, there is a medium distance view to the right along the L6219 local road which is lined by hedgerows and occasional deciduous trees. The centre of the view comprises a gateway into a field of agricultural grassland. Trees and bushes are seen to the left of the image adjacent to the roadside, this vegetation forms part of a tract of woodland either side of the Blackhall Little stream. These trees and a small V-shape valley act as a physical and visual buffer between the agricultural field seen in the centre of the view (site of the proposed housing infrastructure) and the field enclosure at Moygaddy Castle ruins, approximately 45 metres east of the viewpoint.
Proposed Photomontage Description	The Proposed SHD infrastructure of Site C is clearly visible in the centre and right of the photomontage. A four storey apartment block (Block B) is visible in the centre foreground and a streetscape of residential development lines the entirety of one side of the roadway to the right of the photomontage. The carriageway and cycle/pedestrian access of the MOOR is visible along the route of the existing roadway, until the road is re-aligned to the right (north-west) in the background right of the photomontage. The existing hedgerows along the southern side of the local road have been removed to enable the proposed cycleway and pedestrian access alongside the MOOR. Proposed tree planting along the roadside will soften the landscape and visual impact where these hedgerows have been removed. The woodland to the left of the photomontage will be retained. The Proposed Development has altered the character of the rural view to that of a semi-urban, residential setting.
Cumulative Effects	It is unlikely that the proposed Development at Site A, Site B, Kildare Bridge and Moyglare Bridge will be visible from this location. Road and bridge upgrades included as part of the MOOR will be visible to the east (left of the photomontage).
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	"Low: Includes viewers engaged in activities where the focus is not on the landscape or view. These including those travelling along a busy route, viewers at work or engaged in sport not related to views or experience of the landscape."
Magnitude of Change (Definition, See Section 11.2.4)	"Substantial: Substantial change, where the proposals would result in large-scale, prominent or very prominent change, leading to substantial obstruction of existing view or complete change in character and composition of the baseline though removal of key elements or addition of uncharacteristic elements which may or may not be visually discordant. This includes viewpoints where the Proposed Development is fully or almost fully visible over a wide extent, at close proximity to the viewer. This change could be long term or of a long duration."

Viewpoint 11 – Moygaddy Local Road T-junction	
Significance of Effect (Definition, See Section 11.2.4)	Low x Substantial = Moderate/Minor = Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends
Mitigation Factors	<ul style="list-style-type: none"> ➤ The Proposed housing infrastructure is visible within lands zoned as ‘A2 – New Residential’ land zoning in the Maynooth Environs Written Statement (2021-2027). ➤ The woodland seen to the left of the image will not be removed, retaining the integrity of the of the Blackhall Little stream and its surrounds, as well as providing a visual buffer between the proposed housing infrastructure and the amenity area at Moygaddy Castle and Moygaddy House. ➤ The proposed Development does not obscure any long-ranging views of high scenic value.
Residual Effect (incl. mitigating factors)	Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends

Viewpoint 12 – Residential Development South of the Rye Water	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View north towards Site C from a residential housing estate (Mariavilla/Moyglare Hall) south of the Rye Water. ➤ The viewpoint is located approximately 340 metres south of the EIAR Site Boundary at its closest point. ➤ Field of View: north ➤ Grid Ref (ITM): E: 694,447; N: 739,187
Visual Receptors and their sensitivity	Residential Receptors (medium distance) – High/Medium
Description of 'Baseline VVM'	The baseline image shows an open and medium-distance view across the Rye Water flood plain comprising grassland and wooded field boundaries. Beyond the walled enclosure of a residential housing development, the landform dips to the low elevation of the Rye Water River in the middle distance. A relatively flat field and dense treeline form the background of the view. Utility infrastructure such as telecommunications uprights and large overhead power line are visible throughout the view. The view is of a semi-urban, semi-rural character.
Proposed Photomontage Description	The proposed residential infrastructure of site C is visible as a linear array of development across the background of the view on the elevated lands beyond the Rye Water River. The ridgelines of the proposed residential infrastructure is vertically aligned with the existing treeline forming the background of the view, however, the profile of the Proposed Development slightly raises the skyline in the very centre of the photomontage. Although the Proposed Development only alters a small spatial extent of the view, it contributes an additional suburban influence to the landscape view.
Cumulative Effects	No visibility of Site A is anticipated from this viewpoint. There may be some limited visibility of Site B, but this will be mostly restricted by intervening woodland. And the housing developments
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	<p>The residential receptors are approximately 390 metres from the nearest proposed residential unit of Site C and are deemed to be in moderate proximity and the view does not comprise any unique features or attributes of value.</p> <p>“Medium: Includes viewers who may have some susceptibility to a change in view. Viewers such as residents in medium proximity but who do not have views focused in the direction of the Proposed Development or whose views are not of a particularly scenic quality; those from views which are not designated but may have local recreational uses or those travelling along routes or at view which are considered moderately scenic.”</p>
Magnitude of Change (Definition, See Section 11.2.4)	“Moderate: The change in the view may involve partial obstruction of existing view or partial change in character and composition of the baseline through the introduction of new elements or removal of existing elements. Likely to occur at locations where the development is partially visible over a moderate or medium extent, and which are not in close proximity to the development. Change may be readily noticeable but not substantially different in scale and character from the surroundings and wider setting.”

Viewpoint 12 – Residential Development South of the Rye Water	
Significance of Effect (Definition, See Section 11.2.4)	Medium x Moderate = Moderate/Minor = Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends
Mitigation Factors	<ul style="list-style-type: none"> ➤ The proposed housing infrastructure is visible within lands zoned as ‘A2 – New Residential’ land zoning in the Maynooth Environs Written Statement (2021-2027). ➤ Once planting as part of the landscaping plan establishes over time, the planting at the southern perimeter of Site C will soften the visual impact of the Proposed Development from this perspective.
Residual Effect (incl. mitigating factors)	Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends

Viewpoint 13 – Moyglare Hall Road	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View north-east towards Site C from Moyglare Hall Road, the viewpoint is located adjacent to Maynooth Community College Campus. ➤ The viewpoint is located just within the EIAR Study Area, on the southern perimeter of the Moyglare Bridge Application. ➤ Field of View: north-east ➤ Grid Ref (ITM): E: 693,551; N: 739,208
Visual Receptors and their sensitivity	<p>Traffic and Local Road Users – Low</p> <p>Maynooth College Campus – Low to Medium</p> <p>Residential Receptors in the vicinity – High/Medium</p>
Description of 'Baseline VVM'	<p>The foreground of the view shows a field of grassland in a relatively derelict state. Housing from a residential estate is visible to the right of the view. The landform dips to the low elevation of the Rye Water River in the middle distance, agricultural grassland and wooded field boundaries comprise the background of the view. A large overhead power line is a dominant man-made feature to the left of the view detracting quality from the rural landscape character seen in that direction.</p>
Proposed Photomontage Description	<p>The Proposed MOOR and Moyglare Bridge are substantial features visible throughout the foreground of the photomontage. The proposed carriageway, verge and cycle/pedestrian routes extending away from the viewpoint, across the Rye Water valley to Site C which is visible in the background of the photomontage. The proposed Duplex Block A is the most visually prominent building, seen adjacent to the MOOR in the centre-left background of the photomontage. At this distance and perspective, the proposed residential developments of Site C only slightly raise the skyline. The eastern extent of Site C is screened from view by vegetation in the intervening landscape.</p>
Cumulative Effects	<p>No visibility of Site A, Site B or Kildare Bridge is anticipated from this viewpoint.</p>
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	<p>Human influences detract value from this view and it is not a landscape view of any particularly scenic value or uniqueness. Whilst there are residential receptors in proximity to this viewpoint, it is not deemed to be a viewpoint of high sensitivity. On balance, the viewpoint is deemed to be of Medium sensitivity.</p> <p>“Medium: Includes viewers who may have some susceptibility to a change in view. Viewers such as residents in medium proximity but who do not have views focused in the direction of the Proposed Development or whose views are not of a particularly scenic quality; those from views which are not designated but may have local recreational uses or those travelling along routes or at view which are considered moderately scenic.”</p>
Magnitude of Change (Definition, See Section 11.2.4)	<p>“Substantial: Substantial change, where the proposals would result in large-scale, prominent or very prominent change, leading to substantial obstruction of existing view or complete change in character and composition of the baseline through removal of key elements or addition of uncharacteristic elements which may or may not be visually discordant. This includes viewpoints where the Proposed Development is fully or almost</p>

Viewpoint 13 – Moyglare Hall Road	
	fully visible over a wide extent, at close proximity to the viewer. This change could be long term or of a long duration.”.”
Significance of Effect (Definition, See Section 11.2.4)	Medium x Substantial = Moderate = Significant (EPA, 2022) An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Mitigation Factors	<ul style="list-style-type: none"> ➤ The MOOR and Moyglare Bridge are visible, following a route where it is envisaged for a transport road network to exist within local planning policy. The MOOR and Moyglare Bridge are sited within lands zoned as ‘Transport - Indicative Road Route’ in the land zoning (Sheet No: 26(a)) in the Maynooth Environs Written Statement (2021-2027). ➤ The photomontage imagery was captured from a viewpoint in the very centre of the Proposed MOOR/Moyglare Bridge route, accentuating the perceived magnitude of change from this location. In reality the visual effects of the Proposed Development is not by its character or magnitude adversely impacting any valuable landscape view or sensitive visual amenity. ➤ Immediately behind this viewpoint is the end of an existing road network, therefore, visual effects of the MOOR is best categorised as ‘An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends’(See EPA Definition below). ➤ The proposed housing infrastructure is visible, sited within lands zoned as ‘A2 – New Residential’ land zoning in the Maynooth Environs Written Statement (2021-2027). ➤ The gable end of residential properties in proximity to the viewpoint is directed in the same direction as the view shown in the photomontage - to the north-east. Primary residential amenity of these residences is directed north-west, over/across the road of the Proposed MOOR and only a small spatial extent of the Proposed Development will be actually visible compared to the extent which is shown in the photomontage which shows a view to the north-east. ➤ Once planting as part of the landscaping plan establishes over time, the planting at the southern perimeter of Site C will soften the visual impact of the Proposed Development from this perspective.
Residual Effect (incl. mitigating factors)	Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends

Viewpoint 14 – L1012 Local Road, Moyglare	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View south-west from an elevated vantage point on the L1012 Local Road in the townland of Moyglare. ➤ The viewpoint is located approximately 850 metres from the ELAR Study Boundary at its closest point. ➤ Field of View: north-north-west ➤ Grid Ref (ITM): E: 693,003; N: 739,904
Visual Receptors and their sensitivity	<p>Local Road Users – Low</p> <p>Residential Receptors in the vicinity – High/Medium</p> <p>Moyglare Stud (in proximity to the west) – High/Medium</p>
Description of 'Baseline VVM'	<p>The baseline image shows a relatively open and long ranging view across an agricultural landscape of grassland and woodland. The northern fringes of Maynooth Town is visible, framed amongst the deciduous trees to the right of the view. Maynooth Community Campus is identifiable as a large white building to the far right. The Wicklow Mountains form the distant backdrop of the long-ranging landscape view.</p>
Proposed Photomontage Description	<p>Site A, Site B, and Kildare Bridge are not visible, they are screened from view by intervening landscape elements, primarily mature treelines, hedgerows and localised topography. Moyglare Bridge and the MOOR may be slightly visible from this viewpoint, but are difficult to distinguish at this distance.</p>
Cumulative Effects	<p>As demonstrated by the wireline image, no cumulative visual effects will occur.</p>
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	<p>The main receptor at this viewpoint is local traffic, however, there are some residential receptors located in close proximity to this viewpoint. Also, the open, rural landscape view has some scenic qualities. On balance, the sensitivity is deemed to be Medium.</p> <p>“Medium: Includes viewers who may have some susceptibility to a change in view. Viewers such as residents in medium proximity but who do not have views focused in the direction of the Proposed Development or whose views are not of a particularly scenic quality; those from views which are not designated but may have local recreational uses or those travelling along routes or at view which are considered moderately scenic.”</p>
Magnitude of Change (Definition, See Section 11.2.4)	<p>“Negligible: Any change would only be barely distinguishable from the status quo “do-nothing scenario” in the surroundings. The composition and character of the view would be substantially unaltered, approximating to little or no change.”</p>
Significance of Effect (Definition, See Section 11.2.4)	<p>Medium x Negligible = Minor/Negligible = Not Significant (EPA, 2022)</p> <p>An effect which causes noticeable changes in the character of the environment but without significant consequences.</p>
Mitigation Factors	<ul style="list-style-type: none"> ➤ The MOOR and Moyglare Bridge are visible, following a route where it is envisaged for a transport road network to exist within local planning policy. The MOOR and Moyglare Bridge are sited within lands zoned as ‘Transport - Indicative Road Route’ in the land zoning (Sheet No: 26(a)) in the Maynooth Environs Written Statement (2021-2027).

Viewpoint 14 – L1012 Local Road, Moyglare	
Residual Effect (incl. mitigating factors)	Not Significant (EPA, 2022) An effect which causes noticeable changes in the character of the environment but without significant consequences.

Viewpoint 15 – L6219 Local Road West	
Viewpoint Description and Details	<ul style="list-style-type: none"> ➤ View east-south-east towards Site C along the L6219 Local Road ➤ The viewpoint is located approximately 10 metres west of the EIAR Study Boundary. ➤ Field of View: north-north-west ➤ Grid Ref (ITM): E: 693,621; N: 739,358
Visual Receptors and their sensitivity	Local Road Users - Low Residential Receptors in Proximity to Proposed Development - High
Description of 'Baseline VVM'	The 'Baseline VVM' shows a short-distance view around a slight bend on the narrow local road. The road is enclosed on both sides by narrow hedgerows. A cluster of bushes and trees are visible to the left of the view. The skyline is broken by overhead power lines and a large pylon structure to the right of the view.
Proposed Photomontage Description	A small portion of the Proposed SHD infrastructure of Site C is visible at the end of the bend where the Proposed MOOR begins. A vast majority of Site C is screened from view behind the roadside hedgerows and other roadside vegetation. The loss of some hedgerows and addition of housing infrastructure slightly alters the character of the rural view to that of a semi-urban, semi-rural setting.
Cumulative Effects	Site A, Site B, Kildare Bridge and Moyglare Bridge will not be visible from this location and no cumulative visual effects will occur.
Sensitivity of Visual Receptor(s) (Definition, See Section 11.2.4)	<p>The main receptor at this viewpoint is local traffic. Some residential receptors are located in close proximity to this viewpoint, however they will have limited visibility of the Proposed Development due to the nature of vegetation screening in the area. On balance, the sensitivity is deemed to be Medium.</p> <p>"Medium: Includes viewers who may have some susceptibility to a change in view. Viewers such as residents in medium proximity but who do not have views focused in the direction of the Proposed Development or whose views are not of a particularly scenic quality; those from views which are not designated but may have local recreational uses or those travelling along routes or at view which are considered moderately scenic."</p>
Magnitude of Change (Definition, See Section 11.2.4)	"Moderate: The change in the view may involve partial obstruction of existing view or partial change in character and composition of the baseline through the introduction of new elements or removal of existing elements. Likely to occur at locations where the development is partially visible over a moderate or medium extent, and which are not in close proximity to the development. Change may be readily noticeable but not substantially different in scale and character from the surroundings and wider setting."
Significance of Effect (Definition, See Section 11.2.4)	Medium x Moderate = Moderate/Minor = Moderate (EPA, 2022) An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends
Mitigation Factors	<ul style="list-style-type: none"> ➤ Due to roadside vegetation, as well as the winding and undulating nature of the local road, there will be very limited visibility of the

Viewpoint 15 – L6219 Local Road West	
	<p>Proposed Development from much of the Local road to the west of this viewpoint.</p> <ul style="list-style-type: none"> ➤ The Proposed housing infrastructure is visible within lands zoned as ‘A2 – New Residential’ land zoning in the Maynooth Environs Written Statement (2021-2027). ➤ The Proposed Development does not obscure or intrude upon sensitive or scenic landscape views or valuable scenic amenity from this perspective.
Residual Effect (incl. mitigating factors)	<p>Slight (EPA, 2022) An effect which causes noticeable changes in the character of the environment without affecting sensitivities</p>



APPENDIX 13-1

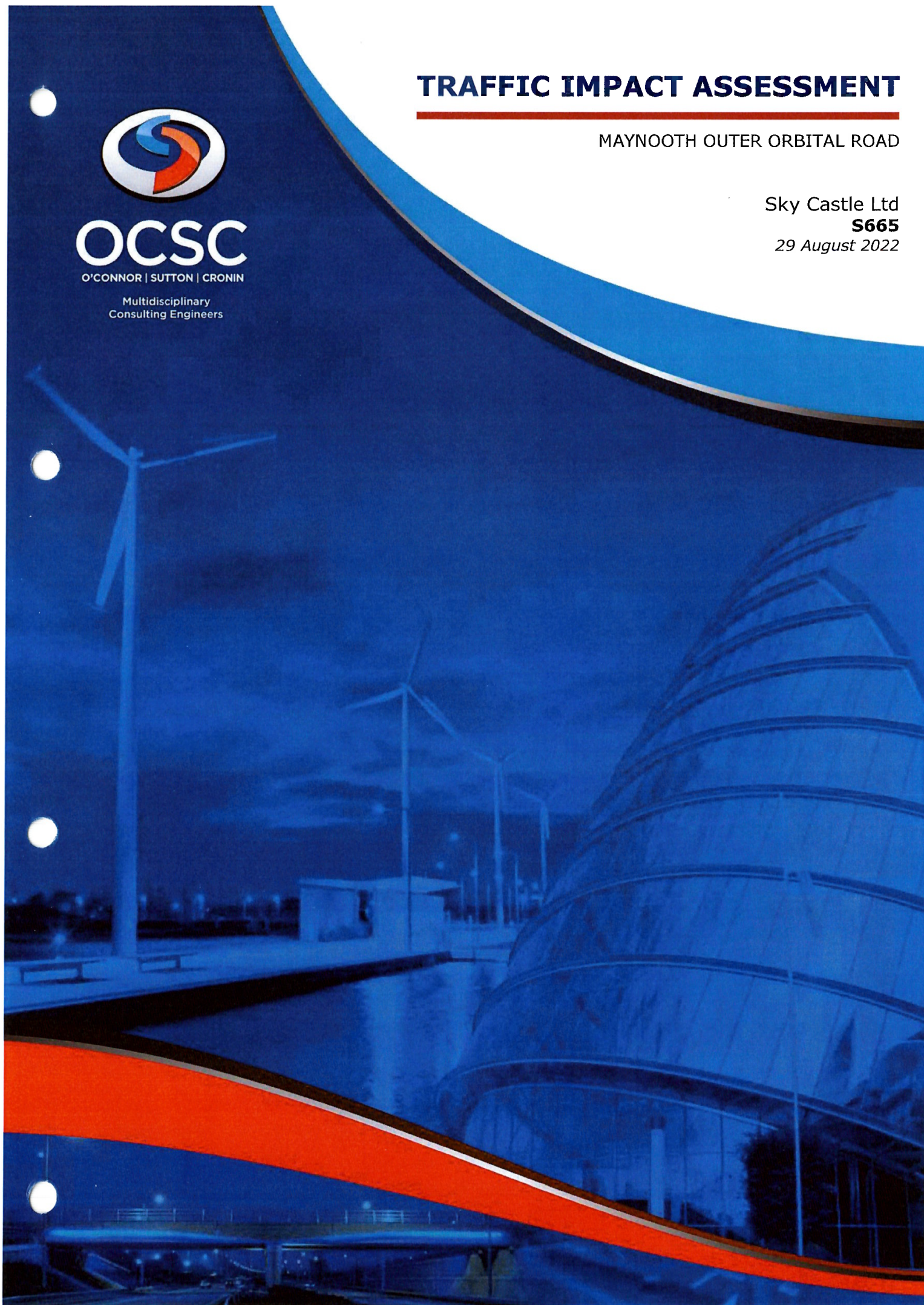
TRAFFIC IMPACT ASSESSMENT



TRAFFIC IMPACT ASSESSMENT

MAYNOOTH OUTER ORBITAL ROAD

Sky Castle Ltd
S665
29 August 2022



TRAFFIC IMPACT ASSESSMENT

Maynooth Outer Orbital Road

Sky Castle Ltd

S665

29 August 2022

TRAFFIC IMPACT ASSESSMENT

MAYNOOTH OUTER ORBITAL ROAD



OCSC

O'CONNOR | SUTTON | CRONIN

Multidisciplinary
Consulting Engineers

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DOCUMENT CONTROL & HISTORY

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1 INTRODUCTION

APPOINTMENT

O'Connor Sutton Cronin & Associates (OCSC) have been appointed by Sky Castle Ltd to carry out the design of the civil engineering services associated with the development of the proposed Maynooth Outer Orbital Road (MOOR) on lands at Moygaddy, Co. Meath, which is located northeast of the town of Maynooth, Co. Kildare.

SETTING

Maynooth environs is a large growth area, category II Town status located in south County Meath, and is an economically vibrant area with high-quality transport links to larger towns/cities. The Meath Development Plan 2021-2027 outlines the social, economic, and planning context for the Maynooth environ lands, setting the framework for the plan's policies and objectives. It has a core strategic vision that seeks to ensure that future growth is based on principles of sustainable development that meet the needs of residents per National and Regional guidelines. The environs of Maynooth is a Core Economic Area included in the Gateway Core Economic Area located on the M4 corridor. The wider Maynooth Environs Lands proposed land-use zoning includes A2 – New Residential, E1 – Strategic Employment Zones, G1 – Community Infrastructure, D1 – Tourism and H1 – High Amenity.

The delivery of the Maynooth Outer Orbital Route (MOOR) is critical to facilitating residential, high-end employment, tourist, and leisure development in the Maynooth environ lands and fulfilling the transport infrastructure needs in proximity to Maynooth University and Maynooth town.

ADMINISTRATIVE JURISDICTION

The proposed development is located primarily in the jurisdiction of Meath County Council (MCC), and therefore the Maynooth Outer Orbital Route design and the associated civil engineering services were carried out with reference to the following:

- Meath County Development Plan 2021-2027;
- Maynooth Environs Local Area Plan 2014 (incorporated into adopted MCDP);
- Regional Spatial and Economic Strategy for the Eastern and Midland Region (2019);

Even though Maynooth Environs is situated in the Meath County Council administrative area, the Maynooth Environs Local Area Plan contains an objective to liaise with Kildare County Council in the identification, design, reservation and delivery of the section of the Maynooth Outer Relief Road located within the administrative area of Meath County Council. The administrative area of Kildare County Council is located immediately adjacent to the LAP environs lands and some infrastructure improvements will be located within the Kildare County Council (KCC) administrative area. Therefore, the design will also be conducted with due regard to:

- Maynooth LAP
- Kildare County Development Plan
- Maynooth Traffic Management Plan

OCSC held discussions with Kildare County Council (KCC) and Meath County Council (MCC) on this scheme, as detailed below:

- OCSC met with MCC on 19 July 2021 to open preliminary discussions on the design of the MOOR. In attendance were Martin Murry (Director of Services for Infrastructure) and Nicholas Whyatt (Senior Engineer Transportation). Since this meeting, a Traffic Modelling Scoping Report has been issued to MCC. It should be noted that KCC specifically requested a Dynamically Assigned traffic model for this scheme. The Developer opted to request OCSC to utilise the PTV Vissim micro-

simulation software package to prepare the requested model, which could then be incorporated into the wider KCC transport study for Maynooth as a whole.

- As noted previously, although the scheme is planned within the MCC jurisdiction, a separate application will be made to KCC for infrastructure within the County. It is however noted that as the largest nearby urban centre is within KCC jurisdiction, they have been consulted as a stakeholder. OCSC met with KCC on 9 August 2021, and 23 September 2021. In attendance were Brigette Rea, Daragh Conlan, George Willoughby, Jonathan Hennessy, and Lisa Kirwan, all from KCC. The same Traffic Modelling Scoping Report has also been issued to KCC.
- OCSC met with MCC on 20 June 2022. In attendance were Michael Costelloe, Joe McGarvey and Paul McNulty. This meeting aimed to establish the outstanding design requirements of the MOOR. Several comments were received, which were included in the design.

In addition, the following submissions were made as part of the proposed development:

- A submission was made on the Maynooth Transport Strategy as part of public consultation no. 1 on the 12th of November 2021. This submission outlines the proposed plans for the area and noted that it should be considered as part of the future Transport Strategy (Appended as Annexure D).
- A submission was made to BusConnects on the 15th of November 2021 noting the upcoming proposals as part of the MOOR that noted the BusConnects project should take cognisance of the upcoming works (Appended as Annexure E).

STUDY AREA

The subject site is located on the southernmost extent of County Meath, as shown in Figure 1, aligning with the county boundary to Co. Kildare. It is approximately 1.5km north of the town of Maynooth, Co. Kildare, which forms part of a larger strategic landbank on zoned lands known as Maynooth Environs. The site is immediately bound by:

- R157 Maynooth – Dunboyne Road, to the east;

- Agricultural lands, to the north and west; and
- River Rye Water, to the south;

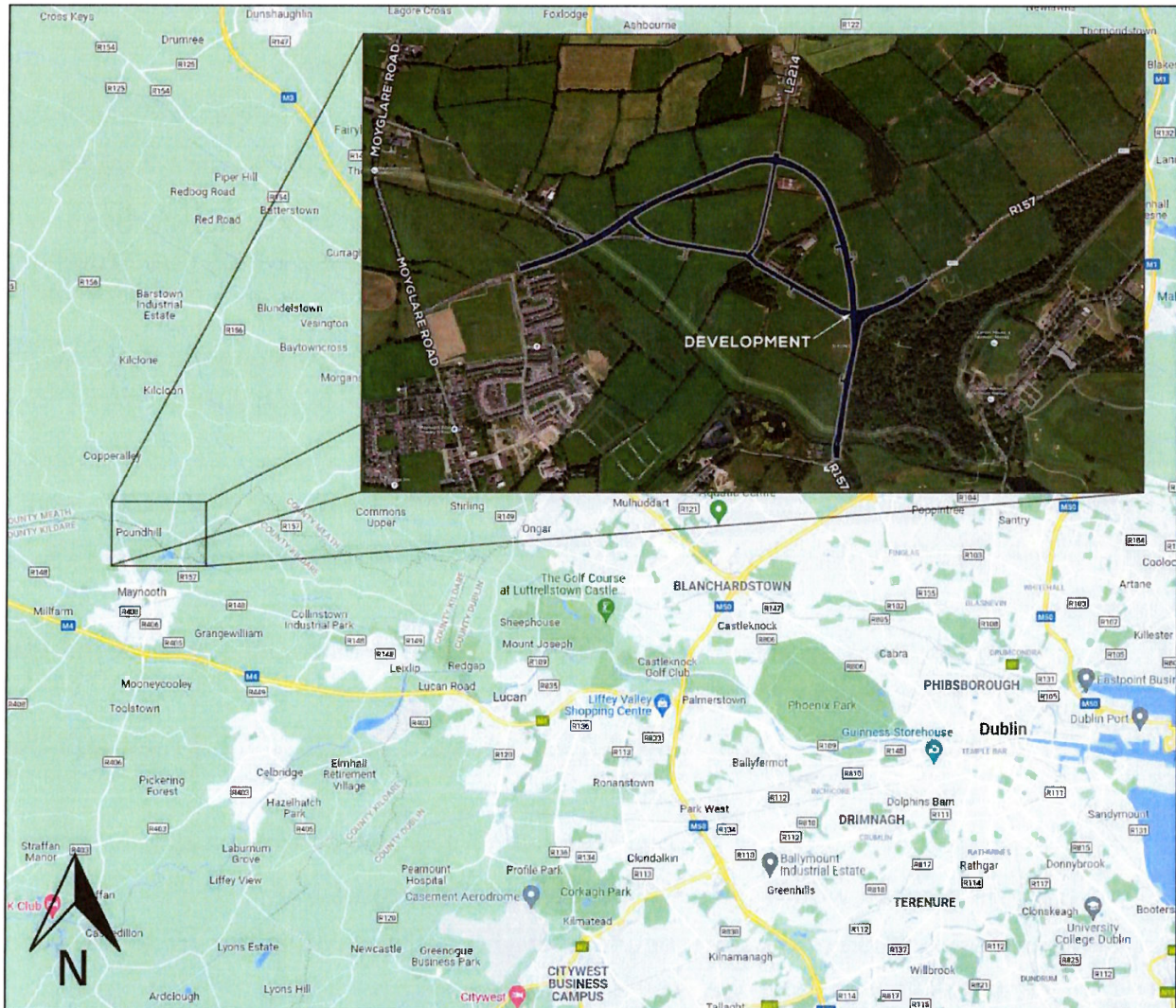


Figure 1: Development Locality Plan

DEVELOPMENT DESCRIPTION

Planning Permission is sought by Sky Castle Ltd. for the development of the Maynooth Outer Orbital Road (MOOR) in the townland of Moygaddy, Maynooth Environs, Co. Meath.

The proposed road development will consist of the following:

1. Provision of approximately 1,700m of new distributor road (MOOR Arc) comprising of 7.0m carriageway with turning lane where required, footpaths, cycle tracks and grass verges. All associated utilities and public lighting including storm water drainage with SuDS treatment and attenuation.
2. Proposed road improvement and realignment works including:
 - (i) realignment of a section of the existing L6219 local road, which will entail the demolition of an existing section of the road which extends to circa 2,500 sqm.
 - (ii) Provision of pedestrian and cycle improvement measures along the L6219 and L22143 which abuts the boundary of Moygaddy House which is a Protected Structure (RPS ref 91558).
 - (iii) Provision of pedestrian and cycle improvement measures along the R157 which abuts the Carton Demense Wall which is a Protected Structure (RPS Ref 91556).
 - (iv) Realignment of a section of the existing L22143 local road and R157, which will entail the demolition of an existing section of the road which extends to circa 3,200 sqm.
 - (v) Provision of a new signalised junction at the realigned junction between the L22143 and R157.
 - (vi) Provision of a new signalised junction between the L2214 local road and the MOOR with right-turn lanes on approaches.
 - (vii) Reconfiguration of the L2214 section within the MOOR arc to a one-way from north to south with right-turn lanes, where applicable.
 - (viii) Reconfiguration of the northbound lane of the L2214 within the arc to a shared facility for use by pedestrians and cyclists.
 - (ix) Addition of chicanes on the L6219 and L22143 local road to reduce traffic flow and encourage utilisation of the MOOR.
3. Provision of 4 no. bridge structures comprising:
 - (i) an integral single span bridge at Moyglare Hall over the River Rye Water to connect with existing road infrastructure in County Kildare and associated floodplain works and embankments.
 - (ii) a new pedestrian and cyclist bridge at Kildare Bridge which will link the proposed site with the existing road network in County Kildare.

- (iii) a new pedestrian and cycle bridge across Blackhall Little Stream on the L22143 adjacent to the existing unnamed bridge.
 - (iv) an integral single span bridge on the north-eastern section of the MOOR arc, over the Blackhall Little Stream, and associated floodplain works and embankments.
4. Provision of site landscaping, public lighting, site services and all associated site development works.
 5. A Natura Impact Statement (NIS) and Environmental Impact Assessment Report (EIAR) has been included with this application.

The purpose of this report is to provide a detailed and conservative assessment of the development proposals and the potential traffic impact on the operation of the local road network. It should be noted that this report on the traffic & transportation analysis on this specific application has been prepared on the basis of an assessment which includes the full buildout of the MOOR by the base year, as well as the entire Masterplan area and all components of the development that are deliverable between the base year and 2030 (Opening Year + 5). Furthermore, an additional assessment was conducted on the strategic master planning for future phases that will be delivered from 2029 to 2040 (the Design Year).

In carrying out the above, this assessment has given due consideration to the relevant guidelines including:

- *Traffic & Transport Assessment Guidelines (2014)* as published by the former National Roads Authority (NRA) now Transport Infrastructure Ireland (TII);
- *Guidelines for Traffic Impact Assessment (1997)* as published by the Chartered Institute of Highways & Transportation;

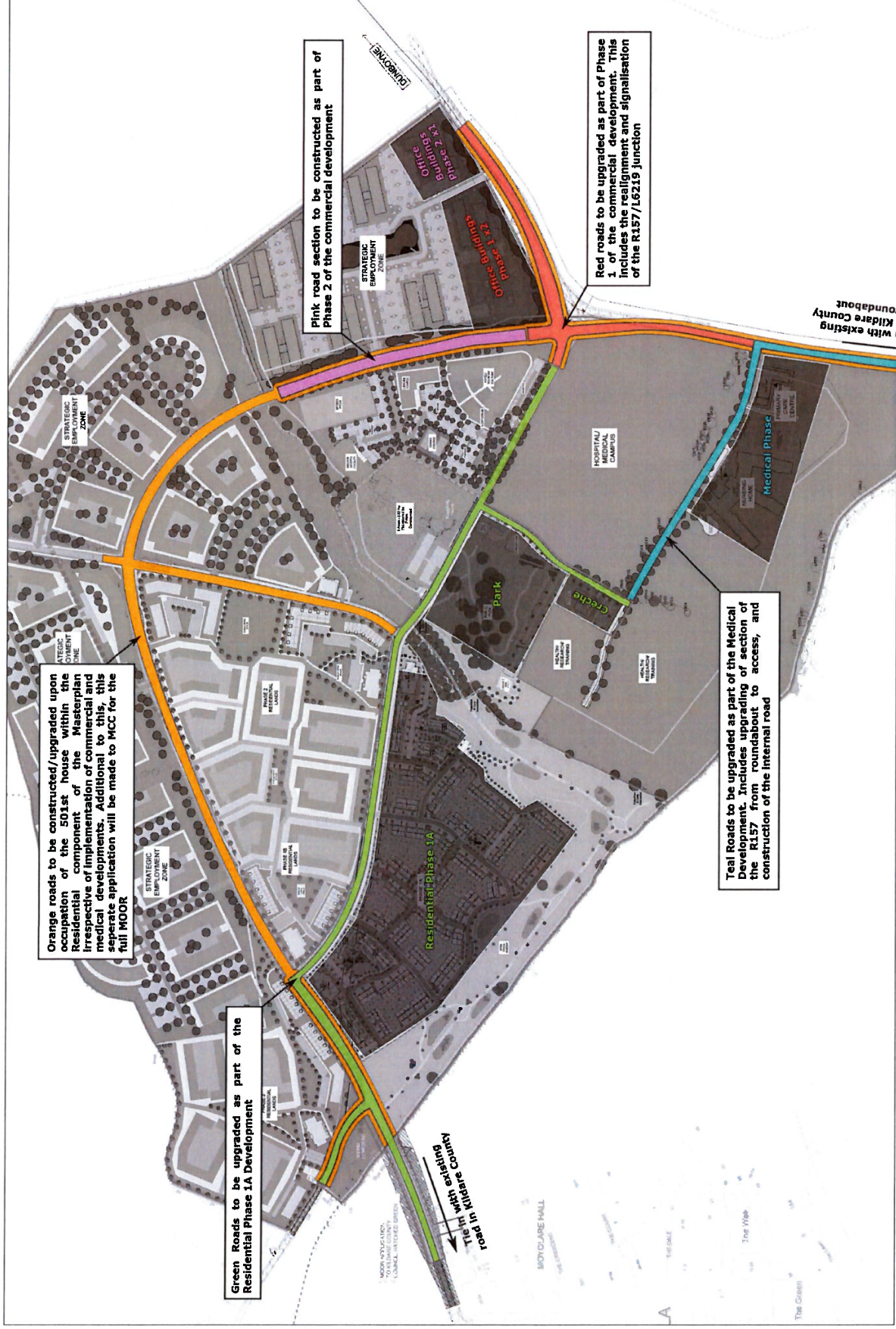
MASTERPLAN PHASING

This application is submitted for the full MOOR to be delivered. The various masterplan development applications will be submitted on the basis that the MOOR will be delivered in phases, linked to individual planning applications which form part of the wider Masterplan for the Maynooth Environs/Moygaddy lands.

The colour of the first three columns links to the figure on the next page. Specific road infrastructure upgrades will be required depending on the timetable when each phase is constructed. The last column of the table indicates in which scenario year the trip generation of that section of the development will be relevant.

Item	Linked Road Infrastructure	Trip Generation Year
Medical Phase		
Primary Care Centre & Nursing Home	Upgrade the R157 from the roundabout in the south up to the access to medical facility	Opening Year (2025)
Medical Research Campus	Full MOOR already operational	Design Year (2040)
Public Hospital	Full MOOR already operational	Design Year (2040)
Office Phase		
Office Buildings Phase 1 x2	Upgrade the R157 north of medical facility access up to the junction between the R157 and the L6219	Opening Year (2025)
	Upgrade R157/L6219 junction to 3-leg signalised junction	Opening Year (2025)
	Upgrade R157 east of junction towards Dunboyne	Opening Year (2025)
Office Buildings Phase 2 x1	Construct the first section of the eastern leg of the MOOR (northern leg of junction) up to the stream	Opening Year (2025)
Office Buildings Phase 3 & 4 x6	Full MOOR already operational	Design Year (2040)
Residential Phases		
Residential Phase 1A, Park & Creche	Construct link road in the west and upgrade road up to junction with R157	Opening Year (2025)
Residential Phase 1B	Full MOOR already operational	Opening Year + 5 (2030)
Residential Phase 2	Full MOOR already operational	Design Year (2040)
Residential Phase 3	Full MOOR already operational	Design Year (2040)
Other Phases		
Tourism and Sports Campus	Full MOOR already operational	Opening Year + 5 (2030)
Hotel	Full MOOR already operational	Design Year (2040)

Table 1: Moygaddy Masterplan Phasing



2 BACKGROUND TRAFFIC VOLUMES

At the time of writing, the ongoing Covid 19 pandemic and associated restrictions have had a significant impact on traffic and travel patterns across the country. As a result, procurement of new survey data, which would be a true reflection of typical traffic levels, has not been possible. However, survey data is available from 2019. The use of this survey data combined with TII traffic growth factors to account for any background traffic increase in the interim is considered to give the most accurate representation possible of the typical traffic levels experienced within the study area.

Details of the junction surveys used for this development are shown in Table 2:

No	Junction	Source	Survey Date	Survey Times
1	Moyglare Road/L6219	Nationwide Data Collection	25/05/2019	07:00 to 19:00
2	Moyglare Road/Mariavilla	Nationwide Data Collection	25/05/2019	07:00 to 19:00
3	L6219/L2214	Nationwide Data Collection	25/05/2019	07:00 to 19:00
4	R157/L6219	Nationwide Data Collection	25/05/2019	07:00 to 19:00
5	R157/Dunboyne Road	Nationwide Data Collection	25/05/2019	07:00 to 19:00
6	R148/R157	Nationwide Data Collection	25/05/2019	07:00 to 19:00

Table 2: Junction Survey Details

A seven-fold classification system was used which recorded cars, taxis, light goods vehicles, heavy goods vehicles, public service vehicles, motorcycles, and bicycles.

The exact locations of these junctions are highlighted in Figure 2.



Figure 2: Traffic Survey Locations

The junction surveys also include queue length surveys which recorded the maximum queue lengths observed on a per lane basis at each approach of each junction over 15-minute intervals.

A full copy of the results of all traffic surveys can be found in *Appendix A*, attached to this report.

The recorded flows during the above peak hours, and across the course of an average day are shown in the following:

- Diagram 1: 2019 A.M. Peak Hour Base Flows (08:00 – 09:00);
- Diagram 2: 2019 P.M. Peak Hour Base Flows (17:00 – 18:00);
- Diagram 3: 2019 Annual Average Daily Traffic Base Flows.

These diagrams, and all others referenced in this text, can be found in *Appendix B*, attached to this report. Any apparent discrepancy in flows between sites may be attributed to vehicles exiting the survey zone either by accessing developments or via minor roads between surveyed junctions.

3 STUDY METHODOLOGY

The short-term traffic counts were expanded to Annual Average Daily Traffic (AADT) using expansion factors¹ from TII. The base year flows were then adjusted to the predicted Year of Opening for the development (2025), Year of Opening + 5 (2030) and the Design Year (2040) using medium-range TII growth factors². This is conservative as traffic growth estimates are directly influenced by projections for economic activity which are now unlikely to be realised due to the impact of the global pandemic, while commuter patterns are also expected to be permanently impacted.

The traffic generation potential of masterplan sites was assessed using the Trics³ planning database. This database contains information on thousands of sites in Ireland and the U.K. and can be used to predict the traffic that will be generated by numerous types of development.

VISSIM MICRO-SIMULATION SOFTWARE

For this project, a dynamic traffic model was built utilizing the Vissim software package, developed by PTV.

Dynamic Assignment

A model was developed for this project using dynamic assignment. The reason for this is due to the objectives of the study. Developing a static model would not yield the desired outcome, as the traffic redistribution due to the implementation of the MOOR would not be accounted for. A further redistribution is possible to other road links should the demand at some junctions exceed the capacity.

¹ Project Appraisal Guidelines for National Roads Unit 16.1 - Expansion Factors for Short Period Traffic Counts, TII (October 2016)

² Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections, TII (May 2019)

³ Trip Rate Information Computer System

Dynamic assignment uses an origin-destination (O-D) matrix to distribute traffic throughout the network. This means that vehicles can dynamically choose their route, to a certain destination in the network.

A good summary of the benefit of dynamic assignment for a study such as this is given in Vissim's documentation:

"In the static assignment, the vehicles follow routes in the road network which you have manually defined. Therefore, the drivers in the simulation have no choice which path to follow from their start point to their destination. For a lot of traffic flow simulation applications this is an appropriate way of modelling.

When the simulated road network grows, there are usually several options for the drivers can choose to go from one point in the road network to another. The simulated traffic must be realistically distributed among these alternatives. Using the traffic assignment, a given traffic demand is distributed among the various paths in the road network. Traffic assignment is one of the basic tasks in the transport planning process. It is essentially a path selection model of transport users, for example drivers of motorized and non-motorized vehicles.

For such a model, first a set of possible paths is determined. These alternatives must be assessed appropriately. A representation follows on how the drivers decide on the basis of this assessment. This path selection decision model is a special case of the general problem of decision based on discrete alternatives (discrete choice). A lot of theory behind traffic assignment models originates from the discrete decision theory. The most common assignment processes in transport planning belong to the class of static assignments. Static thereby means that neither the traffic demand, indicating how many trips should be made in the network, nor the road network changes. This does not correspond to reality. The traffic demand can vary significantly during the day. The road network can have time-dependent characteristics, such as when different signal programs run throughout the day at the signalized nodes and thus create time-dependent capacities for the individual flows. Dynamic assignment takes these temporal fluctuations into account.

The motivations to model the path selection in a Vissim simulation model:

- *With the increasing size of the simulated road network, it will become more and more difficult to enter all paths from sources to destinations by hand, even if no alternative paths are considered.*
- *The path selection behaviour can itself be the subject of your investigation if the effects of measures are to be judged. This would also affect the path selection."*

Origin-Destination Matrix

The O-D matrix was originally sourced from Kildare County Council's (KCC) existing 2016 macro model. However, the full study area comprised one zone within this model, with no zonal information available to the north. As the redistribution of northbound vehicles is an important outcome of this model, this lack of information required a different approach.

It was agreed with KCC & MCC that a different approach would be taken to obtain an O-D matrix. The approach which was agreed upon would be to use the junction surveys to develop an O-D matrix, with the assumption that all traffic travelling north on Moyglare Road and the L2214 would be destined for the R156. This would enable the model to determine a possible redistribution between these two roads, should the MOOR be constructed.

This approach led to the development of a 9x9 O-D matrix with the following zones:

- Zone 1: Moygaddy, south via Moyglare Road
- Zone 2: Moyglare Hall
- Zone 3: Moyglare Road West
- Zone 4: Moyglare Road North
- Zone 5: L2214/Kilcloon Road North
- Zone 6: R157 East
- Zone 7: Dunboyne Road
- Zone 8: Moygaddy, west via the R148
- Zone 9: R148 east

These zones are shown in the figure below:

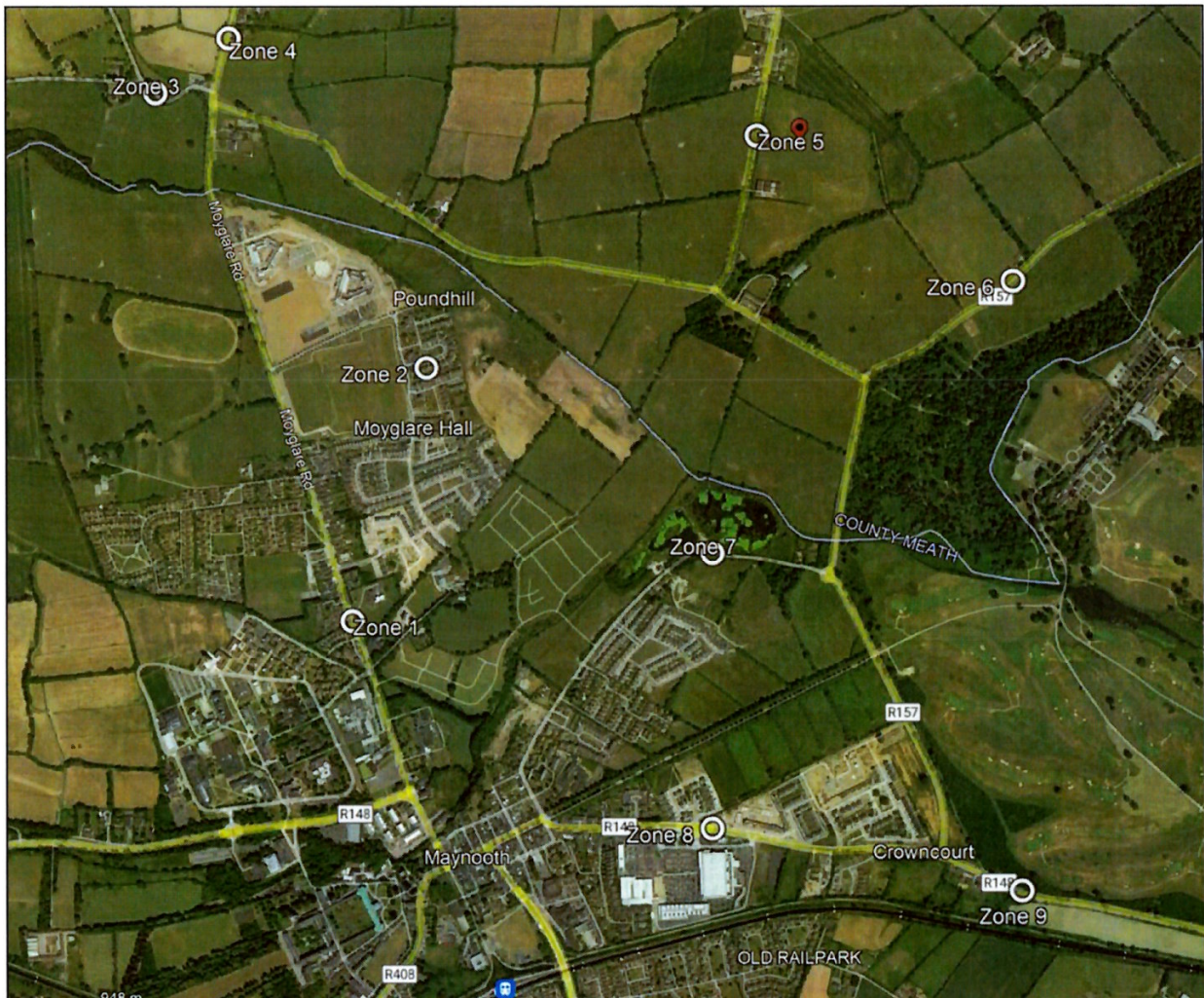


Figure 3: Model Zones

Road Network

The available capacity at certain junctions could potentially also lead to redistribution. Should capacity not be available along the L6219 or the MOOR, vehicles could reroute through Moygaddy itself. To determine this, the link between Zone 1 and Zone 8 was completed, providing an alternate route. However, in reality, the majority of road users will opt to use the MOOR as driving through town will increase the road user cost due to lower speeds, junctions, pedestrians, etc.

To simulate this increased cost, a reduced speed of 20km/h was added to the road section traversing the town. Combined with this, path pre-selection was also limited to rejecting any paths with a total cost higher than 50% as compared to the best path available.

Calibration Criteria

To assess the accuracy of a model, calibration is necessary. Dynamic models utilise origin-destination matrices as inputs, which means that vehicles leave a certain area, and are destined for a different area. These vehicles are then free to choose their routing, usually based on travel time, congestion, etc.

Calibration assesses the volumes in the model and compares them to traffic counts to determine, within certain criteria, the accuracy. This is done per vehicle class used in the model. Changes to the routing of vehicles, the input matrix, or the network itself can then be made to improve accuracy.

For this process, a certain set of calibration criteria is used. Should these criteria be fulfilled, the model can be certified to be accurate and correct in terms of traffic volumes. The criteria assumed for calibration are taken from the U.K. Department for Transport, Transport Analysis Guidance (TAG) Unit M3 and are shown below.

Criteria and Measures	Acceptability Guidelines
Assigned Hourly flows compared with observed flows:	
Individual flows within 15% for flows 700 - 2 700 vph	> 85% of the cases
Individual flows within 100 vph for flows < 700 vph	> 85% of the cases
Individual flows within 400 vph for flow > 2 700 vph	> 85% of the cases
GEH statistic:	
Individual flows: GEH < 5	> 85% of the cases

Table 3: TAG Unit M3.1 Criteria (<https://www.gov.uk/transport-analysis-guidance-tag>)

The following section details the peak hour calibration results for each scenario, defined for the two vehicle classes used in the models, light vehicles, and heavy vehicles. A summary of the results is shown in the table below.

Summary of TAG Calibration Statistics – Light Vehicles		
Description	AM Model	PM Model
Individual flows within 15% for flows 700-2,700 vph	98.9%	96.8%
Individual flows within 100 vph for flows < 700 vph	No observations above 700 Vehicles	No observations above 700 Vehicles
Individual flows within 400 vph for flows > 2700 vph	No observations above 2 700 Vehicles	No observations above 2 700 Vehicles
Individual flows: GEH < 5	98.3%	98.3%

Table 4: TAG Calibration Results - Light Vehicles

Summary of WebTAG Calibration Statistics – Heavy Vehicles		
Description	AM Model	PM Model
Individual flows within 15% for flows 700-2,700 vph	100.0%	100.0%
Individual flows within 100 vph for flows < 700 vph	No observations above 700 Vehicles	No observations above 700 Vehicles
Individual flows within 400 vph for flows > 2700 vph	No observations above 2 700 Vehicles	No observations above 2 700 Vehicles
Individual flows: GEH < 5	100.0%	100.0%

Table 5: TAG Calibration Results - Heavy Vehicles

As can be seen from the above tables, all models are well within the calibration criteria. This confirms that no modelling errors are present.

Extent of the Model

The extent of the modelled area can be seen in Figure 4. The rationale for extending the model north towards the R156 is related to the redistribution assessment and explained in further detail in the assessment chapter of this report.



Figure 4: Extent of the Model

SCENARIOS

To assess the actual impact of the operational development on the local road network, three different scenarios have been analysed as follows:

- Base Year (2019) – The current performance of the local road network;
- Year of Opening (2025) – The performance of the local road network during the Year of Opening. It is anticipated that the full MOOR could potentially be in operation as early as 2025, which is why this was chosen as the Year of Opening;
- Year of Opening + 5 (2030) – The performance of the local road network during the Year of Opening with a 5-year horizon;
- Design Year (2040) – The performance of the local road network during the Design Year.

The future year assessments considered the following scenarios:

- Do Nothing: - This assessment allows for only normal background traffic growth, with no other developments in the area, aside from the Maynooth Community College on the corner of Moyglare Road and the L6219.
- Do Something: - This assessment allows for everything considered in the Do Nothing scenario, with the inclusion of the MOOR, as well as any trips generated by masterplan developments expected to be operational during each of the analysis years. Three developments are expected to be operational by the Year of Opening. These are:
 - Moygaddy Castle SHD, which is a 360 no. unit residential development with a creche on the western side of the development area;
 - A Primary Care Centre (PCC) and Nursing Home Unit to the west of R157, and south-east of the residential development;
 - Three office buildings on the eastern side of the development area, accessed off the R157.
- For the Year of Opening + 5, a further two developments are included. These are:
 - Residential phase 1B, which entails a total of 140 units located north of the R6219. This development is linked to the capped population allocations for the lands between 2022 and 2030. It is envisioned that the balance of residential lands will be brought on stream between 2030 and 2034 subject to additional population figures being allocated to the lands in the 2030 Meath Development Plan;

- Tourism and sports fields located north of the R6219, and east of the L2214, excluding the planned hotel development.
- Do Maximum: - This assessment allows for everything considered in the Do Something scenario, with the addition of trips generated by future developments which form part of the masterplan, that are planned to be implemented by the design year. These include:
 - Six office buildings on the eastern side of the development area;
 - A hospital located west of the R157, and south of the R6219;
 - The addition of a hotel to the tourism area located north of the R6219, and east of the L2214;
 - A medical research campus located west of the planned primary care centre, and will utilise the same access onto the road network;
 - Residential Phase 2 which includes a total of 296 residential units;
 - Residential Phase 3 which includes a total of 222 residential units.

As per the masterplan framework, there is a portion of land on the northern side of the MOOR, zoned for strategic employment. However, it is unrealistic to assume that these lands will be developed within the design year period. This will lead to an oversupply of employment opportunities without the associated demand being present.

As the masterplan development accounts for the majority of development in the area, no natural background traffic growth was applied to this Do Maximum scenario. Rather this scenario includes the full buildout of the masterplan, except for the previously mentioned strategic employment zones. Only natural background traffic growth is not included. The rationale behind this is that these developments will account for future traffic growth in the area. Applying background traffic growth in addition to the trips generated by these would lead to a significant overestimation of traffic in the area and indicate unrealistic capacity problems.

The addition of the background traffic growth to possible future developments outside of the design year has the potential to cause a large overestimation of vehicles from the development and will result in double, or even triple counts of some vehicles. In addition, the potential impact of the reduction of trips due to work-from-home changes

as a result of the covid19 pandemic has not been allowed. Furthermore, the developments assessed in this scenario include several trip generators (residential) and trip attractors (commercial). There will be a large element of internal and diverted trips within the development lands, which have not been accounted for in this assessment and no account has been taken of the modal shift that may arise from enhanced pedestrian & cycle connectivity. Given these facts, it is considered that the calculated traffic volumes used are conservative and wholly appropriate.

Should further trips be included, above what is already being considered, it will lead to an unrealistic view of future traffic. This in turn will lead to a requirement for unnecessarily extensive infrastructure, which will promote private car use and be to the detriment of the sustainable transport goals set out in the Development Plan.

In summary, the full scenario roadmap, which will be used as part of the assessment, is shown in Table 6:

Number	Peak	Year	Scenario
1	AM Peak	2019	Do Nothing
2		2025	Do Nothing
3		2025	Do Something
4		2030	Do Nothing
5		2030	Do Something
6		2040	Do Nothing
7		2040	Do Something
8		2040	Do Maximum
9	PM Peak	2019	Do Nothing
10		2025	Do Nothing
11		2025	Do Something
12		2030	Do Nothing
13		2030	Do Something
14		2040	Do Nothing
15		2040	Do Something
16		2040	Do Maximum

Table 6: Scenario Roadmap

TRAFFIC GROWTH

To accurately assess the impact of the MOOR in the future, the base traffic flows for the local network in 2019 have been expanded to the Year of Opening, Year of Opening + 5, and the Design Year using the medium-range TII growth factors detailed in Table 7:

Year	Growth Rates	
	Light Vehicles	Heavy Vehicles
2019 - 2025	10.84%	24.00%
2019 - 2030	20.76%	48.34%
2019 - 2040	29.49%	78.36%

Table 7: Background Traffic Growth Factors

The growth factors are based on table 6.2 in the *Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections* document. The medium-range rates that were used for the calculation of the above growth rates are shown in the table below:

Region	Central Growth Rates					
	2016-2030		2030-2040		2040-2050	
	LV	HV	LV	HV	LV	HV
Meath	1.0173	1.0365	1.007	1.0186	1.0059	1.0207

Table 8: Rates used for Growth Calculation (TII, May 2019)

The application of the above growth factors should be further considered in the context of the Covid 19 pandemic and potential modal shift, which is expected to have a lasting impact on traffic growth potential and travel patterns over the coming years. Specifically, growth factors are generally developed using projections for economic growth. The global pandemic has had a significant impact in this regard which means such projections are now unlikely to be realised, meaning traffic growth is expected to be similarly over-estimated.

Furthermore, restrictions imposed because of the pandemic response have resulted in a significant portion of the population being forced to work from home. This has

highlighted the viability of this approach in industries where it was previously thought to be incompatible. The knock-on effect is expected to be that a percentage of workers continue to be based at home on a part- or full-time basis even after the pandemic restrictions are lifted. This in turn will have a knock-on effect on commuter and peak traffic levels. The National Transport Authority (NTA) has acknowledged this likelihood in a recently circulated note titled "Alternative Future Scenario for Travel Demand" dated November 2020 where it defines the Covid 19 pandemic as a "shock wave" that "can lead to an acceleration in the natural rate of change in society". The note concludes that the total number of daily trips could be up to 8% lower than previous projections.

Thus, considering the above, the applied growth factors are very conservative.

Additional to the normal traffic growth, the following have been considered for future Do Nothing scenarios and included as part of the background traffic:

- The trips generated by the Maynooth Community College, east of Moyglare Road and south of the L6219. This development was not yet operational during the survey period. For these volumes, the approved planning trip generation rates have been used and included, as per KCC's Online Planning Enquiry System;
- Other large developments in the area have also been investigated and considered where applicable.

4 THE RECEIVING ENVIRONMENT

The receiving environment is rural in nature. The existing primary artery through the study area is the R157, which is a southwest to northeast road connecting Maynooth to Dunboyne. The R157 acts as an important regional distributor road, connecting the M7, M4 and N3 national corridors. Branching off from this road is the L6219 which is a county road, and traverses the Moygaddy areas west to east. The study area is bisected by the existing north-south L2214, which intersects with the L6219. This road is known as the Kilcloon Road. It follows a north-south direction before travelling eastwards to connect to the R156, which link Killucan and Dunboyne.

The Masterplan will consist of trip generators and attractors and so it is expected that there will be an element of internal trips within the Masterplan. While there is substantial variation in the type of traffic travelling on the links locally, during the peak travel hours, they would primarily be expected to carry commuter traffic.

As noted earlier, base traffic levels have been surveyed on the local network in 2019. By combining these base flows with the traffic generation estimates for the proposed development, the following peaks were identified:

- A.M. Peak Hour: 08:00 – 09:00;
- P.M. Peak Hour: 17:00 – 18:00.

The proposed development will impact several existing County roads. Details of these roads are shown in the table below:

No	Street Name	Description	Environment:	Design	Average Road Width (m)	Traffic Classification
1	Moyglare Road	This north-south road connects the western side of Maynooth in the south, to the R156 in the north	Environment:	Rural to urban	6.00	Rural Link Road
			Layout:	Two-lane undivided road west of the development		
			Verge:	Rural shoulders in the vicinity of the site		
			NMT:	No specific provision		
			Illumination:	None in the vicinity of the site		
2	L6219	This is a connecting road between Moyglare Road in the west and the R157 in the east	Environment:	Rural fringe	5.80	Rural Local Road
			Layout:	Two-lane undivided road central in the development		
			Verge:	Rural shoulders		
			NMT:	No specific provision		
			Illumination:	None in the vicinity of the site		
3	L2214 Kildoon Road	This is a small connecting road, parallel to Moyglare Road. This road connects L6219 in the south to the R156, passing by Kildoon	Environment:	Rural to rural fringe	5.00	Rural Local Road
			Layout:	Two-lane undivided road north of the development		
			Verge:	Narrow rural shoulders in the vicinity of the site		

No	Street Name	Description	Design		Average Road Width (m)	Traffic Classification
4	R157	Road which links Maynooth in the south-west and Dunboyne in the north-east.	NMT:	No specific provision	7.00	Rural Distributor Road
			ILLUMINATION:	None in the vicinity of the site		
			ENVIRONMENT:	Rural to urban		
			LAYOUT:	Two-lane undivided road east of the development		
			VERGE:	Rural shoulders in the vicinity of the site		
			NMT:	Walkways from Maynooth up to River Rye Water. No provision in the vicinity of the site		
			ILLUMINATION:	None in the vicinity of the site		

Table 9: Base Year Road Network

5 CHARACTERISTICS OF THE DEVELOPMENT

MAYNOOTH OUTER ORBITAL ROAD OVERVIEW

The MOOR will be a single carriageway road connecting the Maynooth environs between the east and west. A portion on the western side will be constructed in County Kildare and tie in with existing infrastructure by means of a new bridge and road section. This can be seen in the figure below.

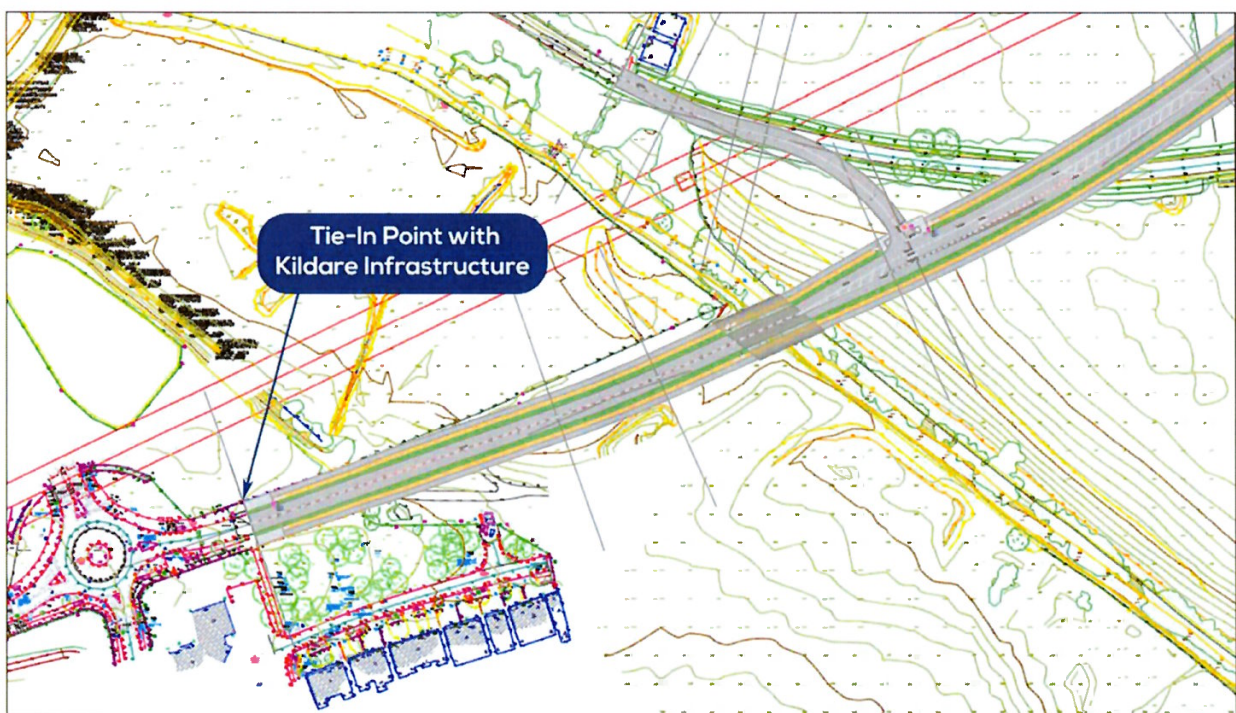


Figure 5: MOOR Western Kildare Tie-In

On the eastern side, the road will again tie in in County Kildare, just north of the roundabout on the R157. A separate cycle and pedestrian bridge will be constructed alongside the existing bridge to allow for continuation of this infrastructure, tying in with existing infrastructure in County Kildare. The tie-in location has been agreed with Kildare and on review of planning compliance submission made by Cairn Homes. This can be seen in the figure below.



Figure 6: MOOR Eastern Kildare Tie-In

The rest of the MOOR will form an arc through the Maynooth Environs, connecting the western and eastern ends. A portion of the L6219 on the western side will be realigned to accommodate the arc. This section is shown in the figure below.

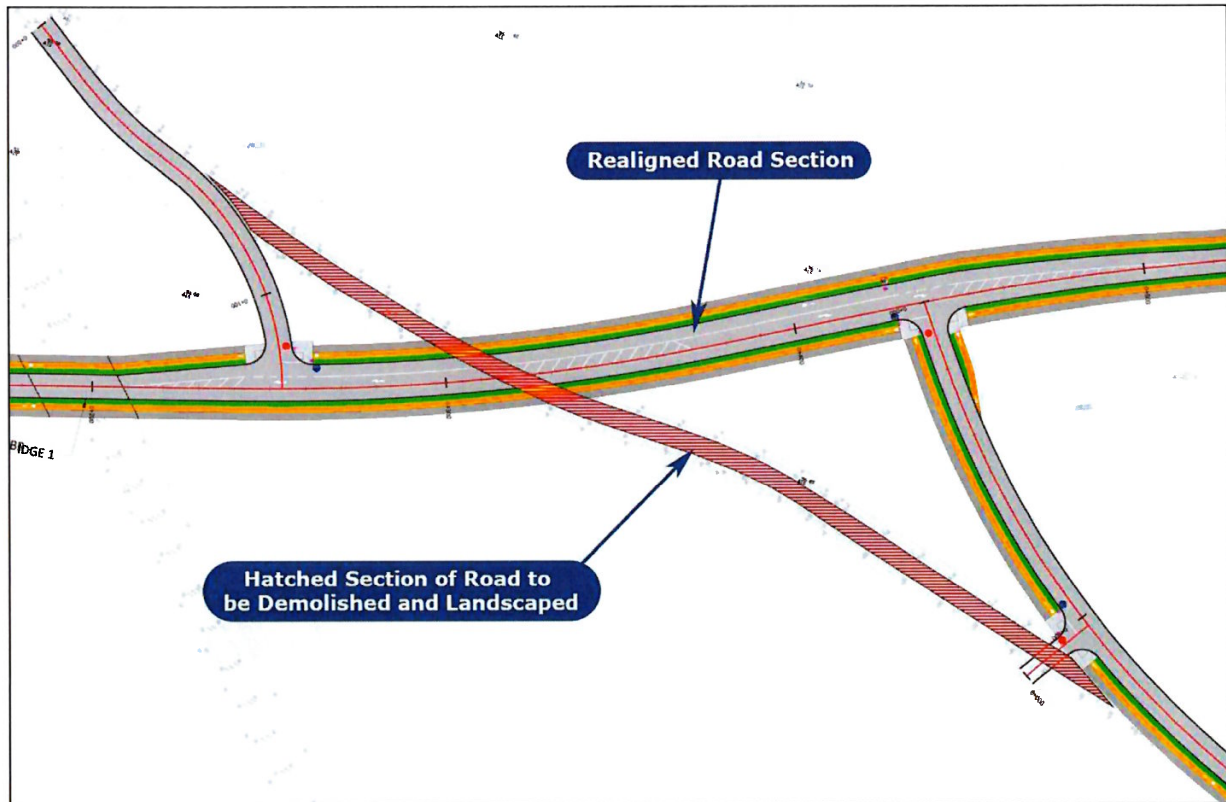


Figure 7: Road Section to be Realigned

The current L2214 (Kilcloon Road) will change to a north-to-south one-way road within the arc. The current south-to-north lane will be converted to a shared facility which can be used by pedestrians and cyclists. The new northern junction between the MOOR and the L2214 will be constructed as a signalised junction. The is shown in the figure below.

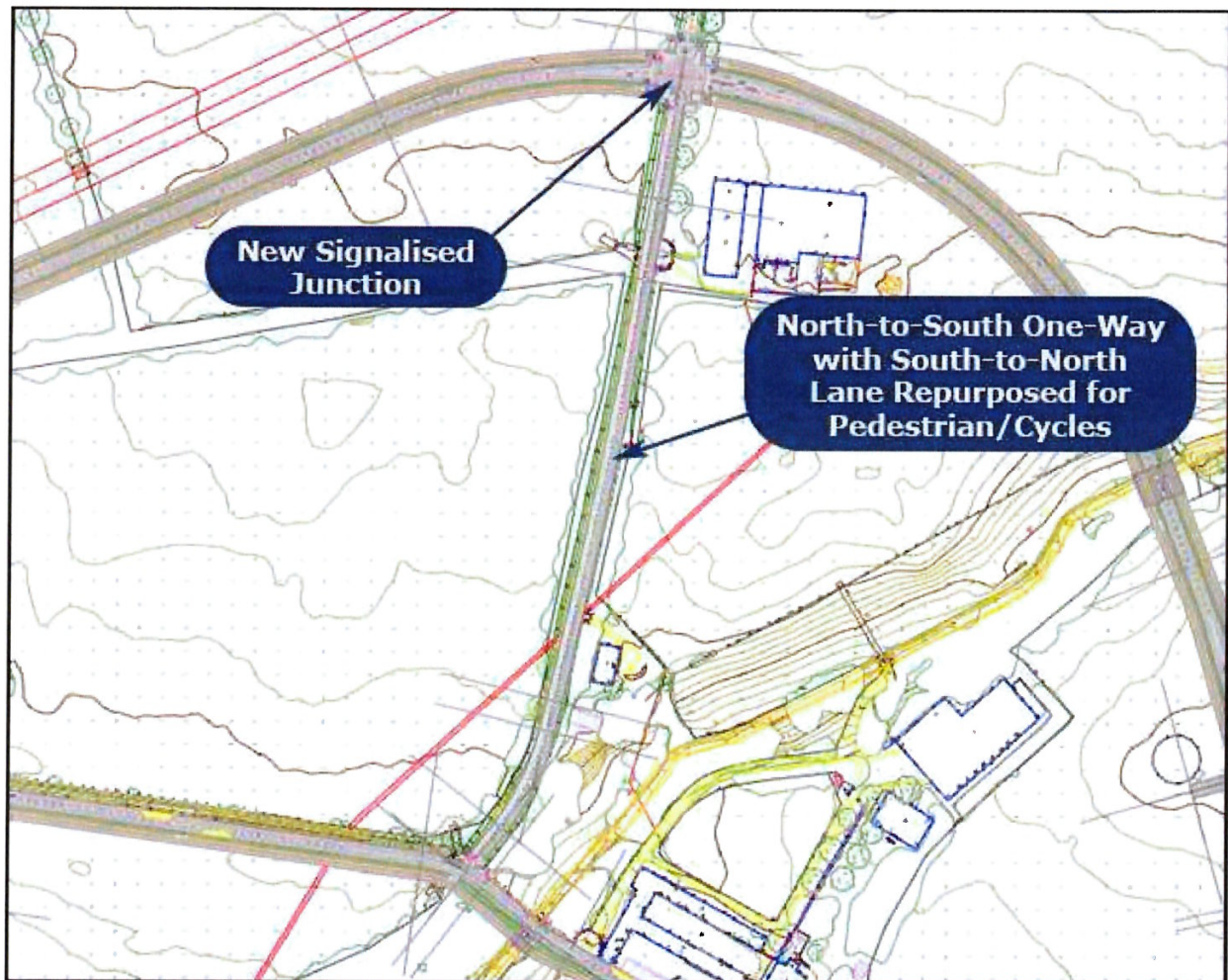


Figure 8: Center of Arc (L2214 - Kilcloon Road)

The junction between the R157, L6219, MOOR and Dunboyne Road on the eastern side of the arc will be realigned and constructed as 4-leg signalised junction, as shown below.

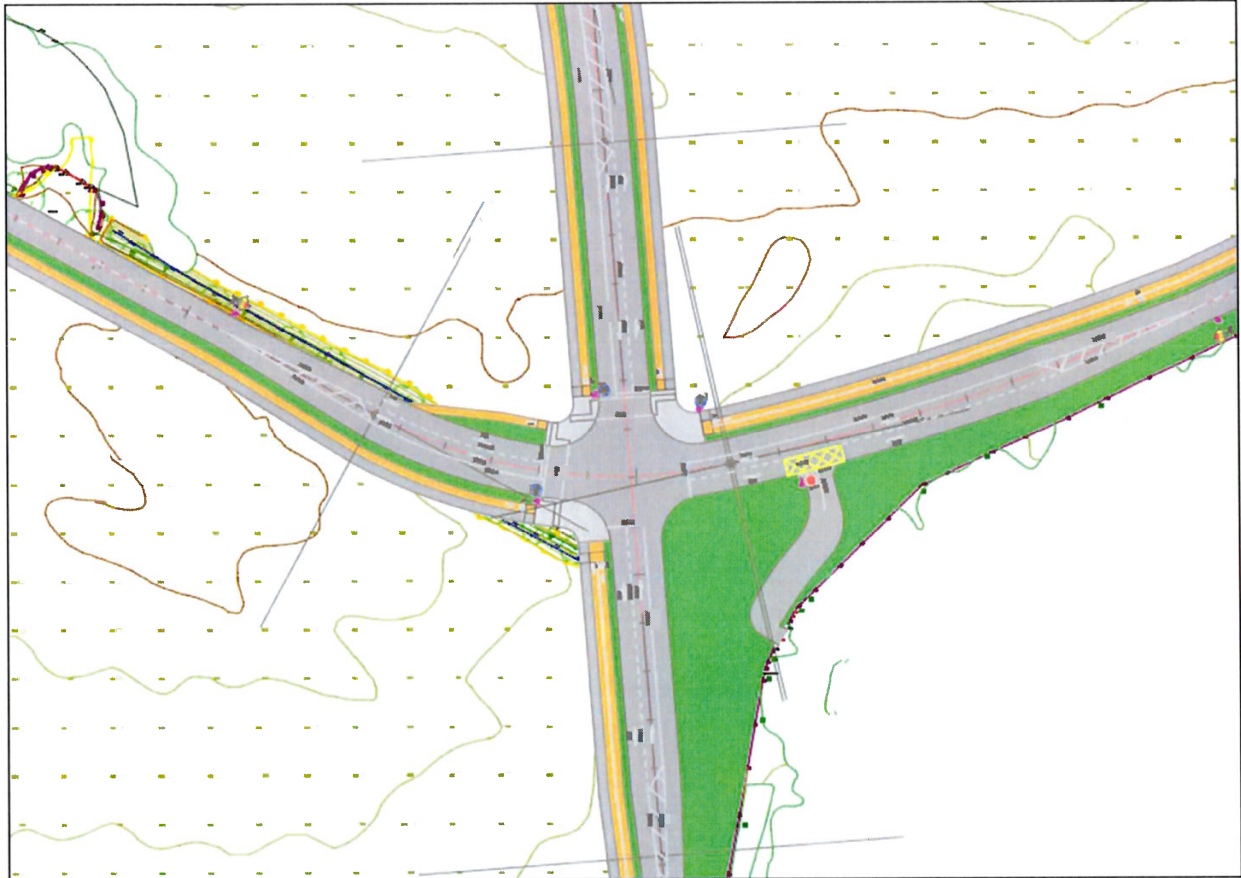


Figure 9: Realigned Signalised Junction on Eastern

For the construction of this junction, a portion of the existing R157 and Dunboyne Road will be realigned, as shown in the figure below.

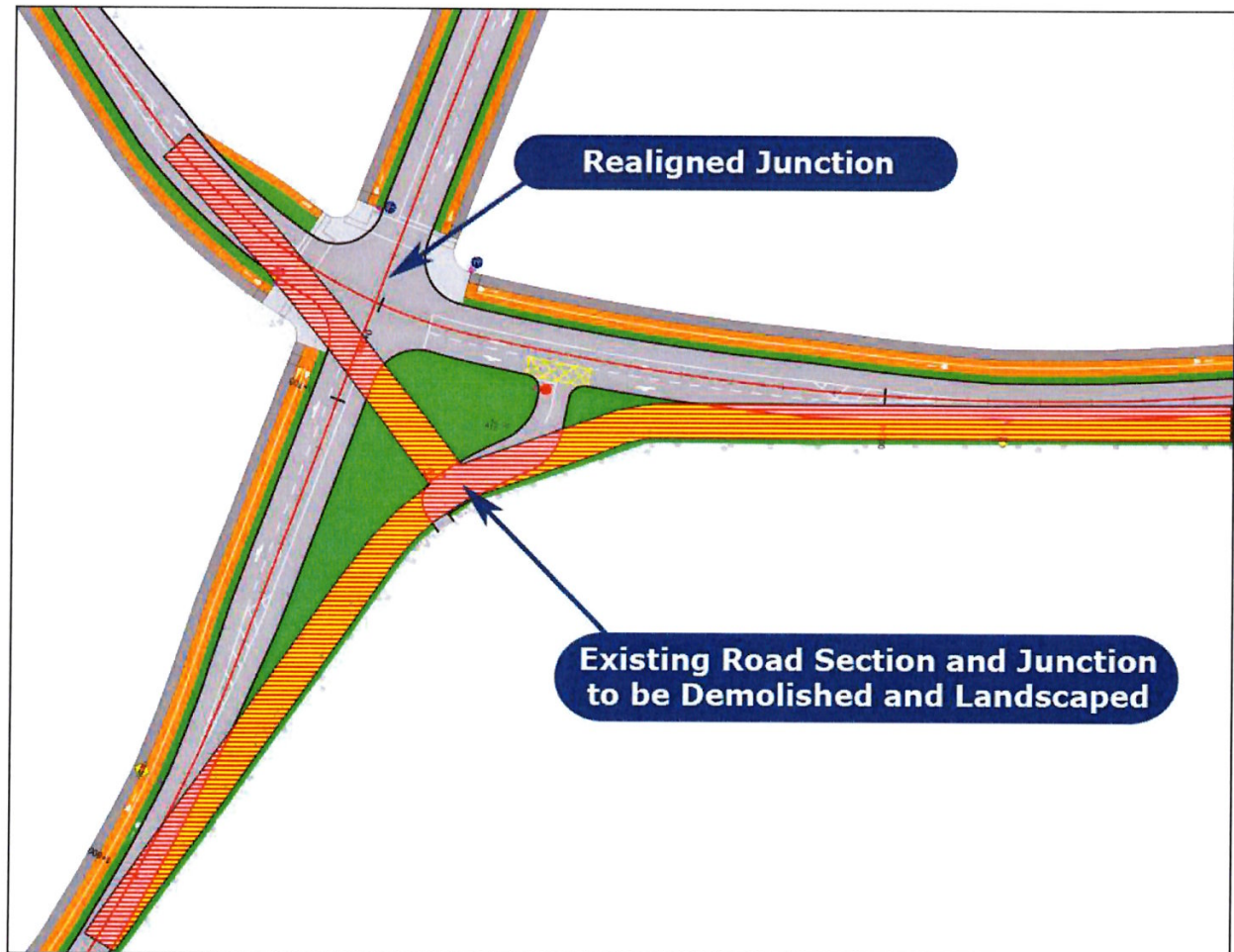


Figure 10: Existing R157/Dunboyne Road Realignment

Four different bridges will be constructed as part of the MOOR. These are highlighted in the figure below.

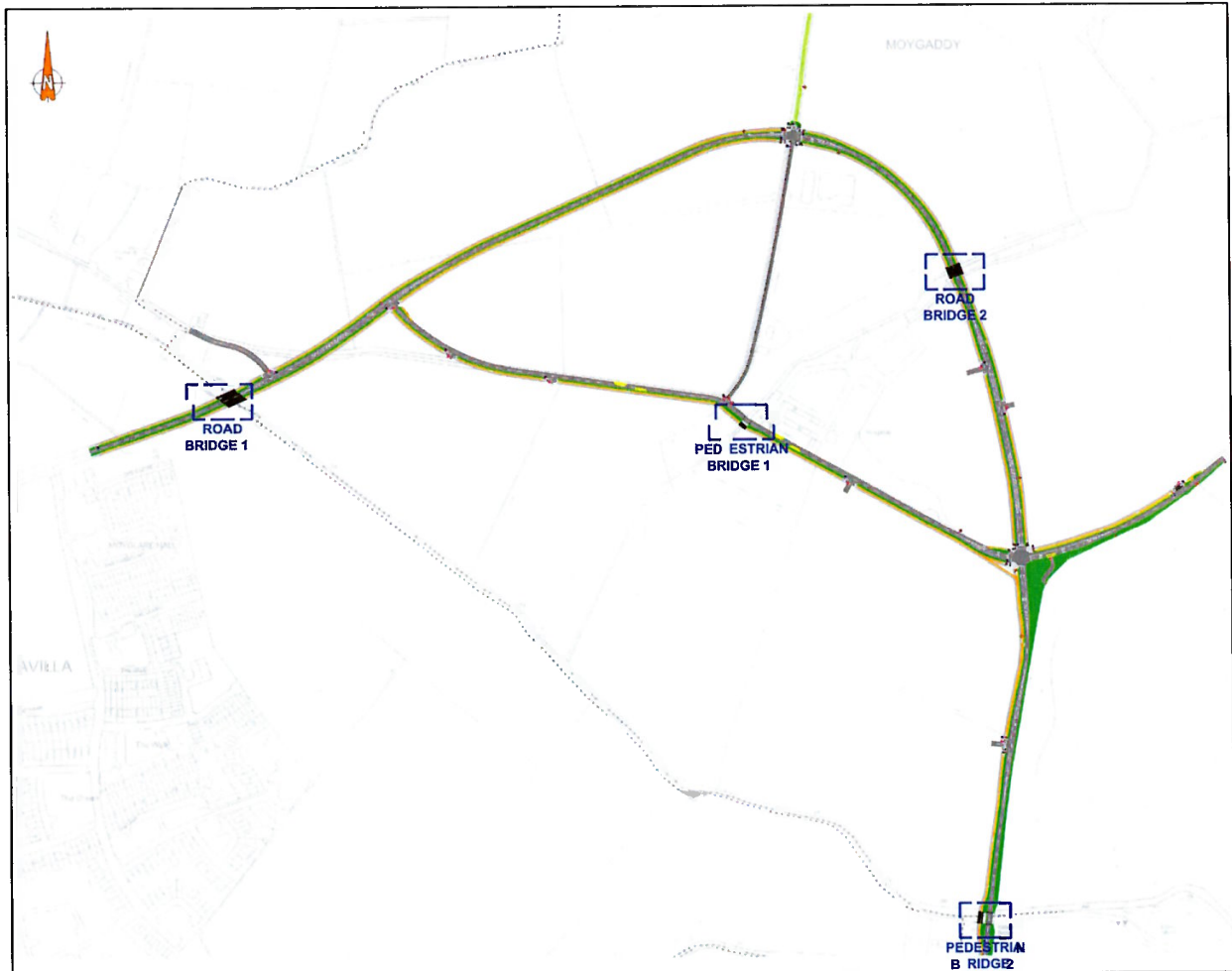


Figure 11: MOOR Bridges

Road bridges 1 and 2 will be new bridges which will be constructed as part of the MOOR. Pedestrian bridges 1 and 2 will be additional structures constructed adjacent to the existing bridge structures to accommodate pedestrian and cycle permeability. More information on these bridges is available in OCSC report "Bridge Options Report" submitted separately.

TRIP GENERATION

The traffic generation potential of the developments, which are part of the Masterplan, for each analysis year has been estimated using the Trics software modelling database. This database contains records of surveys carried out at a range of development types across the UK and Ireland. It records a variety of details including the number and type of vehicles entering and exiting the site as well as several other site-specific factors.

It is noted that the potential additional trips generated by the developments are estimated to allow the maximum estimated trips included as part of this assessment which will ensure a comprehensive and conservative assessment. Cognisance should be taken of the fact that the trip generation makes no allowance for any internal or diverted trips. This masterplan contains mixed land-uses, including several trip generators and attractors in the area. This aspect has not been considered for the trip generation, further highlighting the conservative nature of this calculation.

When developing traffic generation estimates for any development, several surveys are selected from the database based on a range of factors including development type, size, location, public transport etc. The results are then used to establish trip rates for the development in question which is ultimately used to derive estimates for traffic generation.

Opening Year Developments

The trip generation for the developments in the vicinity, anticipated to be operational by the Opening Year, as discussed in Chapter 3, are shown in the tables following:

Time Range	Apartments			Houses			SHD Development
	166	units	Total	194	units	Total	
	Arrivals	Departures		Arrivals	Departures		
07:00-08:00	13	45	58	7	37	44	102
08:00-09:00	15	33	48	17	53	71	119
09:00-10:00	16	16	32	28	29	57	89
10:00-11:00	12	14	26	17	24	41	67
11:00-12:00	10	10	20	21	19	40	60
12:00-13:00	14	15	30	24	15	39	69
13:00-14:00	15	13	28	22	21	43	71
14:00-15:00	13	13	26	17	31	49	75
15:00-16:00	16	13	29	37	20	56	85
16:00-17:00	19	16	35	33	20	53	88
17:00-18:00	33	10	42	41	14	55	97
18:00-19:00	21	16	37	33	23	56	93
19:00-20:00	13	45	58	12	10	22	80
20:00-21:00	15	33	48	6	4	10	58
Daily Trips:	198	214	412	316	320	636	1048

Table 10: Estimated Future Trips Generated by the SHD Development

Time Range	Primary Care Centre			Nursing Home Unit			Medical
	30.49	per 100m ²	Total	156	beds	Total	Development
	Arrivals	Departures		Arrivals	Departures		Total
07:00-08:00	2	4	6	28	7	35	41
08:00-09:00	8	0	8	12	13	25	33
09:00-10:00	16	8	24	27	11	38	62
10:00-11:00	8	14	22	32	15	47	69
11:00-12:00	8	14	22	23	25	48	70
12:00-13:00	11	4	15	18	27	45	60
13:00-14:00	8	10	18	35	30	65	83
14:00-15:00	16	17	33	31	47	78	111
15:00-16:00	11	10	21	31	31	62	83
16:00-17:00	2	7	9	15	32	47	56
17:00-18:00	10	7	17	13	21	34	51
18:00-19:00	7	10	17	12	15	27	44
19:00-20:00	2	4	6	5	10	15	21
20:00-21:00	0	0	0	10	9	19	19
Daily Trips:	109	109	218	292	293	585	803

Table 11: Estimated Future Trips Generated by the Primary Care Centre & Nursing Home Development

Time Range	Business Park – 3 Buildings		
	323	Parking spaces	Total
	Arrivals	Departures	
07:00-08:00	62	7	69
08:00-09:00	119	14	132
09:00-10:00	49	14	63
10:00-11:00	18	13	30
11:00-12:00	16	16	32
12:00-13:00	22	30	52
13:00-14:00	27	24	50
14:00-15:00	17	20	37
15:00-16:00	12	35	47
16:00-17:00	11	58	69
17:00-18:00	8	89	97
18:00-19:00	5	46	50
Daily Trips:	364	365	729

Table 12: Estimated Future Trips Generated by the Office Development – 3 Buildings

Opening Year + 5 and Design Year Developments

The trip generation for the developments in the vicinity, anticipated to be operational by either the Design Year only, or both the Opening Year + 5 and Design Year, as discussed in Chapter 3, are shown in the tables below:

Time Range	Residential Phase 1B ¹		
	140	units	Total
	Arrivals	Departures	
07:00-08:00	10	36	46
08:00-09:00	13	30	42
09:00-10:00	15	15	30
10:00-11:00	11	13	24
11:00-12:00	10	9	19
12:00-13:00	13	13	26
13:00-14:00	13	12	25
14:00-15:00	11	13	24
15:00-16:00	16	12	28
16:00-17:00	18	13	31
17:00-18:00	28	9	37
18:00-19:00	19	14	33
19:00-20:00	2	1	3
Daily Trips:	179	190	369

¹Included in both Opening Year + 5 and Design Year Scenarios

Table 13: Estimated Future Trips Generated by Residential Phase 1B

Time Range	Residential Phase 2		
	275	units	Total
	Arrivals	Departures	
07:00-08:00	22	75	97
08:00-09:00	26	54	79
09:00-10:00	26	27	53
10:00-11:00	20	23	43
11:00-12:00	17	17	34
12:00-13:00	24	26	50
13:00-14:00	25	22	46
14:00-15:00	22	21	43
15:00-16:00	26	22	48
16:00-17:00	32	26	58
17:00-18:00	54	17	70
18:00-19:00	34	26	61
19:00-20:00	22	75	97
Daily Trips:	328	354	682

Table 14: Estimated Future Trips Generated by Residential Phase 2

Time Range	Residential Phase 3		
	222	units	Total
	Arrivals	Departures	
07:00-08:00	18	60	78
08:00-09:00	21	44	64
09:00-10:00	21	22	43
10:00-11:00	16	19	35
11:00-12:00	14	13	27
12:00-13:00	19	21	40
13:00-14:00	20	18	38
14:00-15:00	18	17	34
15:00-16:00	21	18	39
16:00-17:00	26	21	47
17:00-18:00	44	13	57
18:00-19:00	28	21	49
19:00-20:00	18	60	78
Daily Trips:	265	286	551

Table 15: Estimated Future Trips Generated by Residential Phase 3

Time Range	Hospital		
	270	Per 100 m ²	Total
	Arrivals	Departures	
07:00-08:00	211	41	252
08:00-09:00	254	87	341
09:00-10:00	231	108	339
10:00-11:00	173	163	336
11:00-12:00	158	175	333
12:00-13:00	121	131	252
13:00-14:00	148	145	293
14:00-15:00	134	150	285
15:00-16:00	123	167	289
16:00-17:00	106	205	312
17:00-18:00	108	200	308
18:00-19:00	79	158	237
19:00-20:00	61	109	170
20:00-21:00	29	102	131
21:00-22:00	5	29	34
Daily Trips:	1941	1969	3911

Table 16: Estimated Future Trips Generated by the Hospital

Time Range	Medical Research Facility (Business Park)		
	215	Parking spaces	Total
	Arrivals	Departures	
07:00-08:00	154	18	171
08:00-09:00	294	34	327
09:00-10:00	121	34	155
10:00-11:00	44	31	75
11:00-12:00	38	40	78
12:00-13:00	54	75	129
13:00-14:00	66	58	125
14:00-15:00	42	50	93
15:00-16:00	30	86	115
16:00-17:00	27	144	171
17:00-18:00	20	221	241
18:00-19:00	11	114	125
Daily Trips:	901	905	1806

Table 17: Estimated Future Trips Generated by the Medical Research Facility

Time Range	Business Park – 6 Buildings		
	477	Parking spaces	Total
	Arrivals	Departures	
07:00-08:00	92	10	102
08:00-09:00	175	20	195
09:00-10:00	72	21	93
10:00-11:00	26	19	45
11:00-12:00	23	24	47
12:00-13:00	32	45	77
13:00-14:00	40	35	74
14:00-15:00	25	30	55
15:00-16:00	18	51	69
16:00-17:00	16	86	102
17:00-18:00	12	132	144
18:00-19:00	7	68	74
Daily Trips:	537	539	1077

Table 18: Estimated Future Trips Generated by the Office Development – 6 Buildings

Hotel and Tourism Development													
Time Range	Leisure Centre ¹			Theatre ¹			Art Galleries ¹			Hotel			Total
	25 Arrivals	per 100 sqm Departures	250 Arrivals	seats Departures	10 Arrivals	per 100 sqm Departures	118 Arrivals	Beds Departures	Total Arrivals	Total Departures	Total Arrivals	Total Departures	Total
06:00-07:00	5	0	0	0	0	0	0	0	5	0	5	0	5
07:00-08:00	14	4	0	0	0	0	12	17	26	21	46	21	46
08:00-09:00	23	15	8	3	0	0	18	21	48	38	87	38	87
09:00-10:00	25	17	0	5	2	1	21	25	48	48	96	48	96
10:00-11:00	18	19	0	0	1	1	18	26	37	46	83	46	83
11:00-12:00	20	20	0	0	0	1	18	22	38	43	81	43	81
12:00-13:00	25	22	0	0	2	0	23	21	51	43	94	43	94
13:00-14:00	21	27	0	0	1	2	18	20	40	50	90	50	90
14:00-15:00	22	20	15	8	3	2	21	22	61	52	114	52	114
15:00-16:00	31	25	5	3	4	2	20	19	60	48	108	48	108
16:00-17:00	35	32	23	20	1	5	25	22	84	79	163	79	163
17:00-18:00	40	43	0	3	0	1	33	23	73	69	143	69	143
18:00-19:00	38	40	33	7	0	0	22	17	93	63	157	63	157
19:00-20:00	39	36	82	11	0	0	16	15	137	62	199	62	199
20:00-21:00	24	27	5	3	0	0	12	12	41	42	83	42	83
21:00-22:00	5	32	0	38	0	0	13	18	17	88	106	88	106
22:00-23:00	2	3	0	5	0	0	12	16	13	24	37	24	37
23:00-24:00	0	0	0	0	0	0	3	0	3	0	3	0	3
Daily Trips:	386	383	170	104	15	16	305	316	875	818	1693	818	1693

¹Included in both Opening Year + 5 and Design Year Scenarios

Table 19: Estimated Future Trips Generated by the Hotel and Tourism Development

TRIP DISTRIBUTION

Trip distribution was done through an origin-destination assessment, using the junction surveys. A percentage arrival/departure split was calculated according to the peak hour. These percentages are shown in the table below:

Origin/Destination	AM		PM		AADT	
	Arr	Dep	Arr	Dep	Arr	Dep
Moyglare Road (S)	8%	18%	14%	9%	12%	13%
Moyglare Road (N)	8%	2%	3%	8%	6%	5%
Moyglare Road (W)	11%	3%	3%	9%	6%	6%
Mariavilla	10%	3%	3%	6%	6%	5%
L2214	6%	3%	3%	6%	6%	5%
R157 (N)	15%	28%	24%	13%	18%	18%
Dunboyne Road	12%	7%	5%	11%	1%	8%
R148 (W)	15%	16%	23%	18%	23%	19%
R148 (E)	16%	20%	23%	20%	22%	21%
Total	100%	100%	100%	100%	100%	100%

Table 20: Trip Distribution Percentages

The origin and destination values for the additional zones included in the various models to represent the developments, as discussed in the *Trip Generation* section of this document, were distributed according to the above table. The percentage of arrivals and departures of this development are shown in the figures overleaf. In reality, the model uses the percentages as the origin-destination values. The distribution along the roads are estimated, with the model assigning these trips automatically.

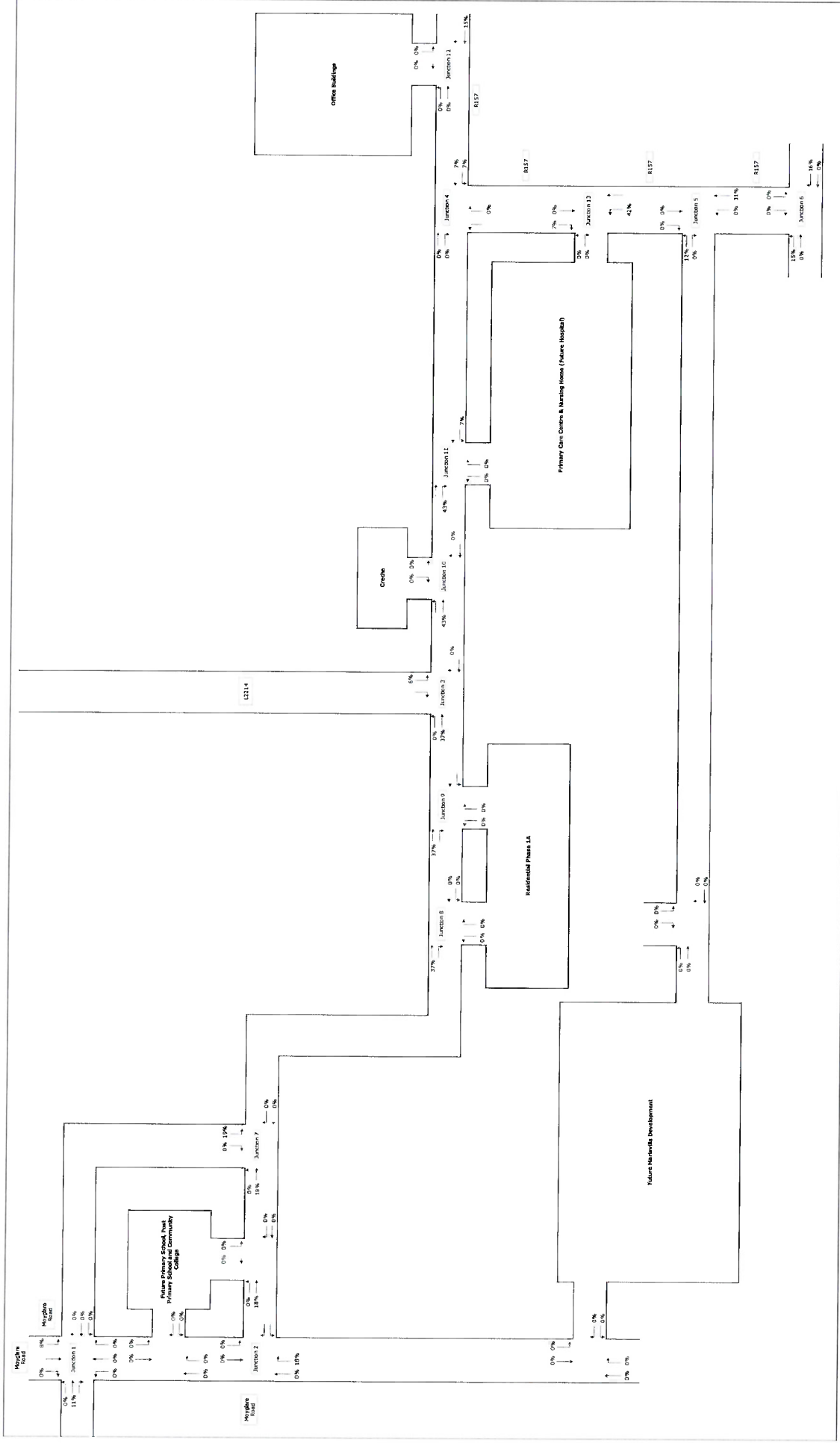


Figure 12: Development Trip Arrival Distribution - AM Peak

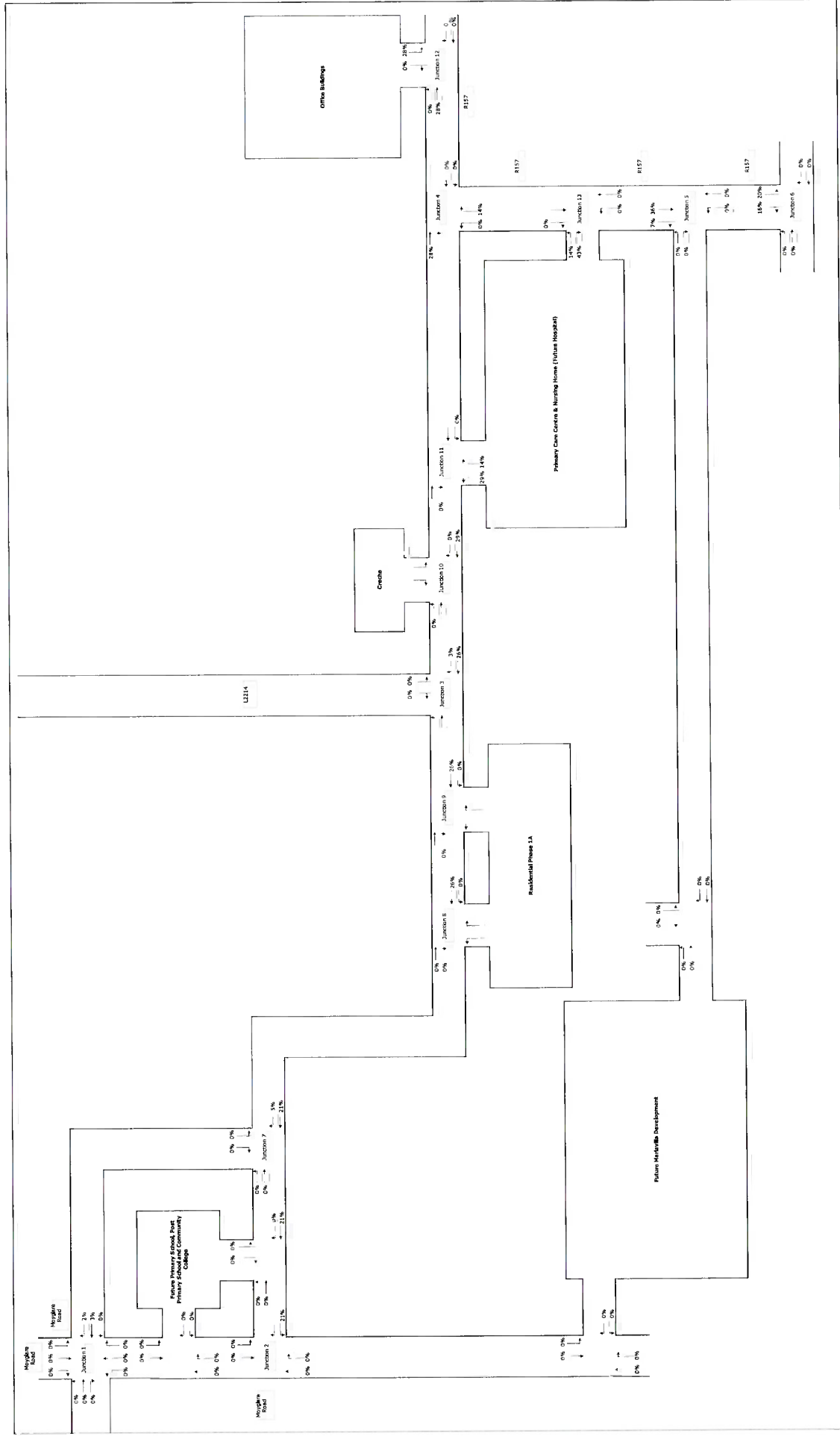


Figure 13: Development Trip Destination Distribution – AM Peak

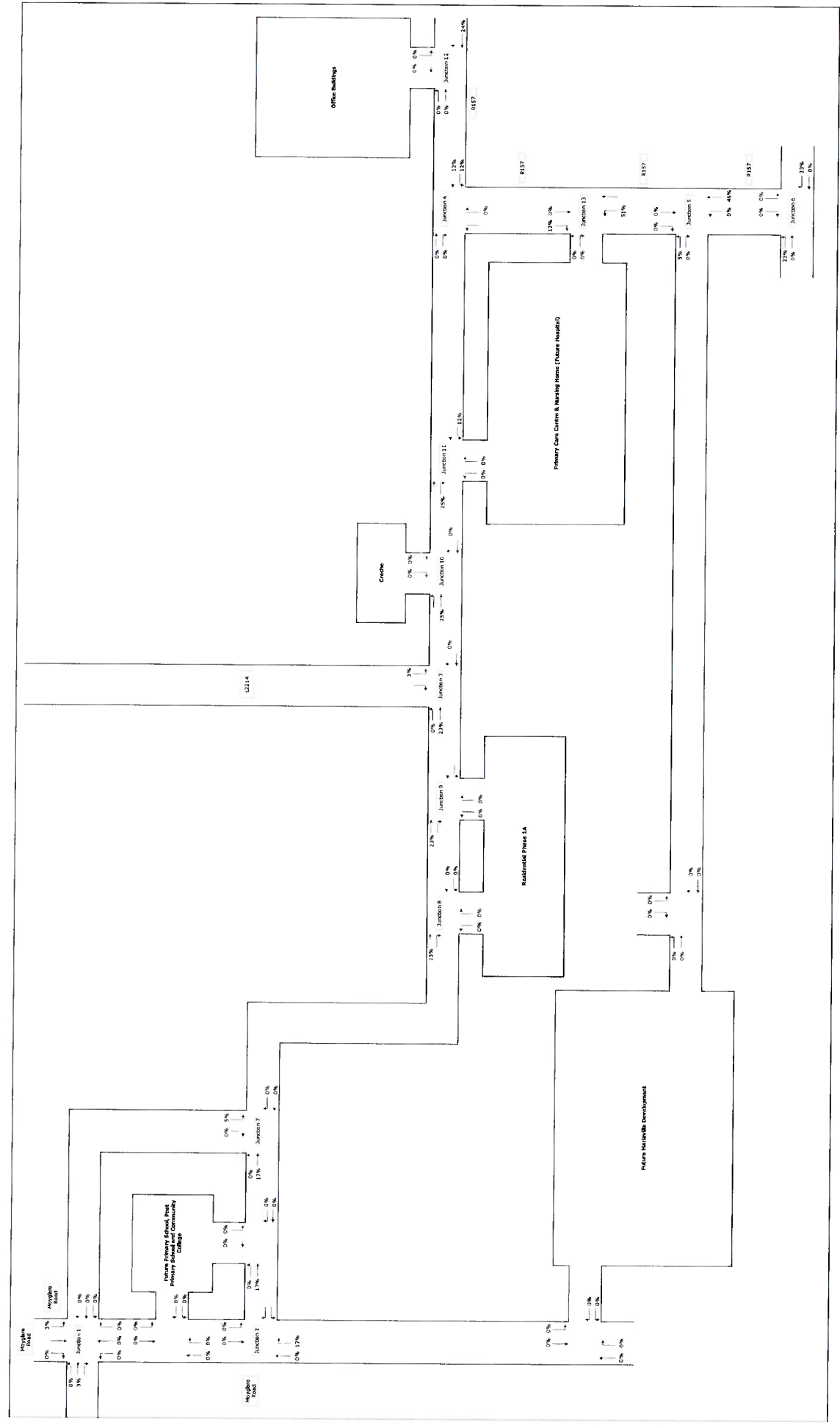


Figure 14: Development Trip Arrival Distribution - PM Peak

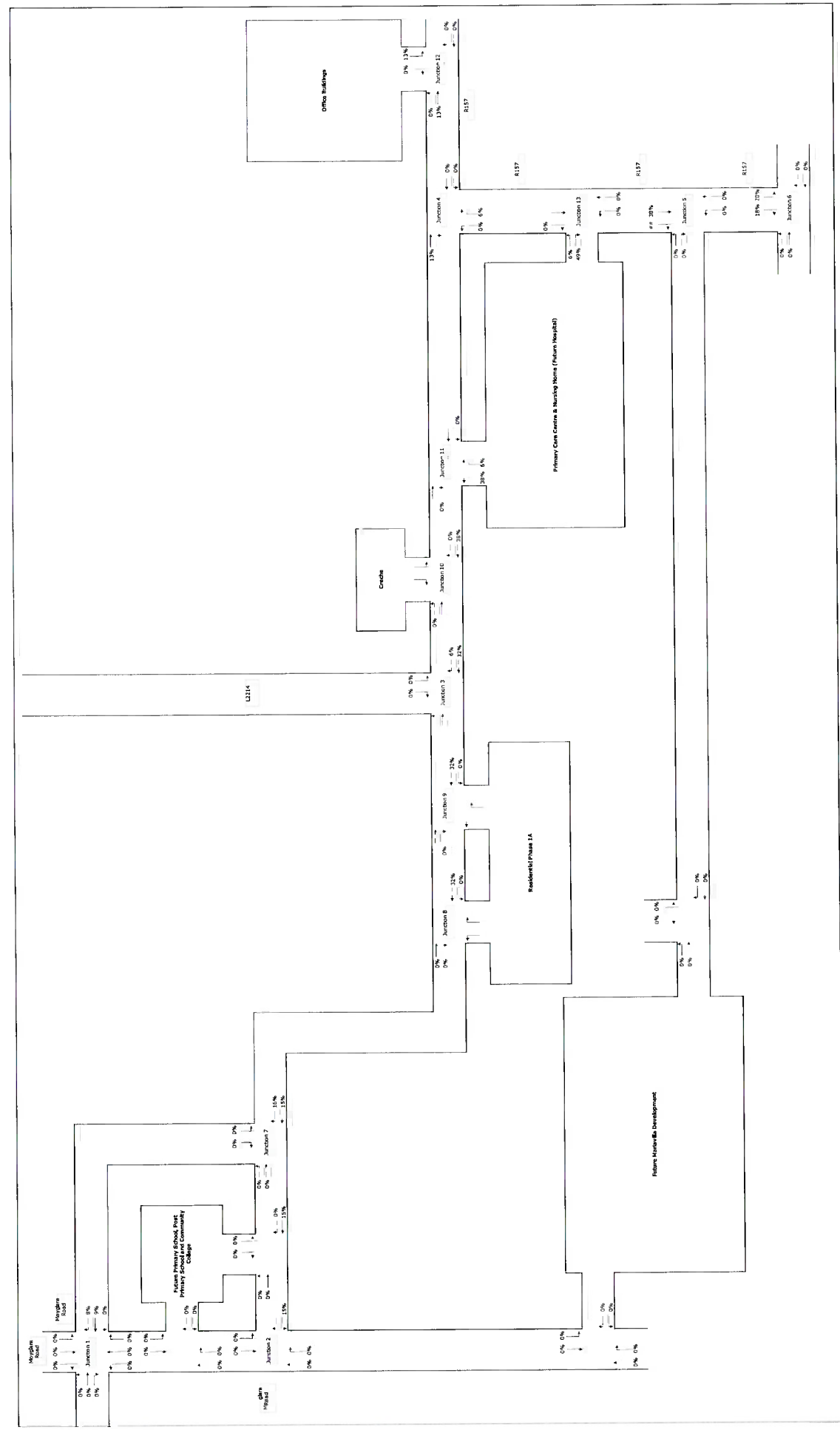


Figure 15: Development Trip Destination Distribution - PM Peak

6 POTENTIAL IMPACT OF DEVELOPMENT CONSTRUCTION

It is difficult to assess the exact quantum of traffic that will be generated during the construction period. However, to estimate the volume and rate of construction traffic, it is first necessary to estimate the amount of excavation and earthworks required on the site. Topsoil and subsoil/stones will be excavated to accommodate roads, footpaths, services, and construction. It is noted that for all areas of new construction (excluding green areas such as public open spaces and gardens) that the existing topsoil needs to be removed. As is good sustainable practice the topsoil excavated on the site will all be utilised on the site and added to the existing topsoil in areas such as gardens and open spaces. This will improve the depth of the growing medium in these areas and remove any requirement to transport topsoil from the site. The geotechnical investigations of the site suggest that there is generally 100mm of topsoil in the area for construction with some areas of 200mm of topsoil uncovered in the study area. There will be a requirement to remove topsoil from the site. Based on a 3d ground model of the existing site the expected volume of materials has been calculated. The following calculations have been made (see Table 2 over):

Item	Cut Volume (m ³)		Fill Volume (m ³)
Roads	34 750		17 250
Total Cut	Cut	Reuse	Export
	34 750 m ³	17 250 m ³	17 500 m ³
Total Fill	Fill	Reuse	Import
	17 250 m ³	17 250 m ³	0 m ³
Total Haulage	c. 40 250 Tonnes		

Table 21: Development Cut & Fill Calculations

The cited figures in the table above are overall cumulative cut and fill volumes and relate to all proposed works at the site. It should be noted that these numbers are approximated and will be subject to change depending on construction methodologies

and ambient weather conditions at the time of the works. It was assumed that the density of excavated material is approximately 2.3 tons/m³.

Based on this, and from the experience of similar construction projects, it is considered that there will be a maximum of twelve HGVs serving the site during any given daytime hour. This is based upon the knowledge that it takes on average 10 minutes to load a lorry with spoil but could be as short as 5 minutes. As such, the two-way HGV traffic is unlikely to be higher than 24 vehicles per hour at any point of the day. Based on an 8-hour day and a 22-working day month, 24 vehicles per hour equates to 4,224 vehicles per month.

It is worth noting however that the 40 250 tonnes of combined recycling & disposal equate to just over 2 015 truckloads based on 20 tonnes per load. It should be further noted that three other developments, an office development, Nursing Home & Primary Care Centre & SHD development, are earmarked for construction during a similar timeframe as this development, within the same area. It could be possible that excess cut volumes from these sites can be used for the shortfall of fill volume for this site, reducing the amount of material that needs to be imported.

Measures will be put in place to minimise the amount of construction traffic generated by the development. These measures will include the reuse of materials within the site for landscape purposes, or within adjacent sites for fill, to limit the amount of spoilage.

It will be an objective of this development to reuse as much material as possible and minimise the amount of material to be transported off-site. Furthermore, the possibility will be investigated of using excess cut material in other developments which form part of the wider masterplan, implemented within the same timeframe of this development. This will minimise the transportation distance, which will reduce the environmental impacts and cost of the development.

The contractor will maximise the use of precast materials or prefabricated materials wherever possible and economically viable. Adequate storage space will be provided on site for the storage of materials and a site strategy will be put in place to manage the

timing of deliveries to the site. Trips by construction workers will be limited by the provision of car-sharing and Travel to Work Scheme benefits. Construction workers will be encouraged to use public transport to the maximum possible extent. Adequate storage space will be provided on site for the storage of materials and a site strategy will be put in place to manage the timing of deliveries to the site.

It is not anticipated that the amount of construction traffic will exceed the amount of operational traffic.

7 POTENTIAL IMPACT OF DEVELOPMENT OPERATION

TRAFFIC REDISTRIBUTION

To assess the potential redistribution of traffic due to the implementation of the development, the dynamically assigned Vissim model was consulted. It should be noted that route choice was limited to reject paths with a total cost higher than 50% as compared to the best path, as road users will in general avoid long detours. Two potential redistribution implications are relevant to this area.

Redistribution to Kilcloon Road (L2214)

The first potential redistribution entails vehicles north- and southbound on Moyglare Road and Kilcloon Road (L2214), to and from the R156 in the north. With the inclusion of the MOOR, the Kilcloon residents have historically raised a concern that the route along Kilcloon is an easier access route than along Moyglare Road, towards the R156 in the north, which could lead to redistribution and an increase in traffic through the village of Kilcloon.

To assess this potential redistribution, an assumption was made that all surveyed vehicles travelling north and south, north of the junctions between Moyglare Road and the L6219, and between the L6219 and L2214, travel to and from the R156. Although this is unlikely, it does represent a worst-case scenario and is a very conservative and robust assumption.

For Vissim to accurately determine this redistribution, Moyglare Road and the L2214 were extended up to the R156, with all associated speed changes along the way. This is important as the average speed will affect route choice.

It should be noted that through discussions with Meath County Council, it was identified that they are planning on implementing various traffic calming measures at Kilcloon to

deter traffic from using this road. The Kilcloon Traffic Calming Scheme proposes traffic calming at two locations, shown in the figure below, extracted from drawing number TRA-04-012-04-99-DG3802 of the Kilcloon Traffic Calming Scheme:

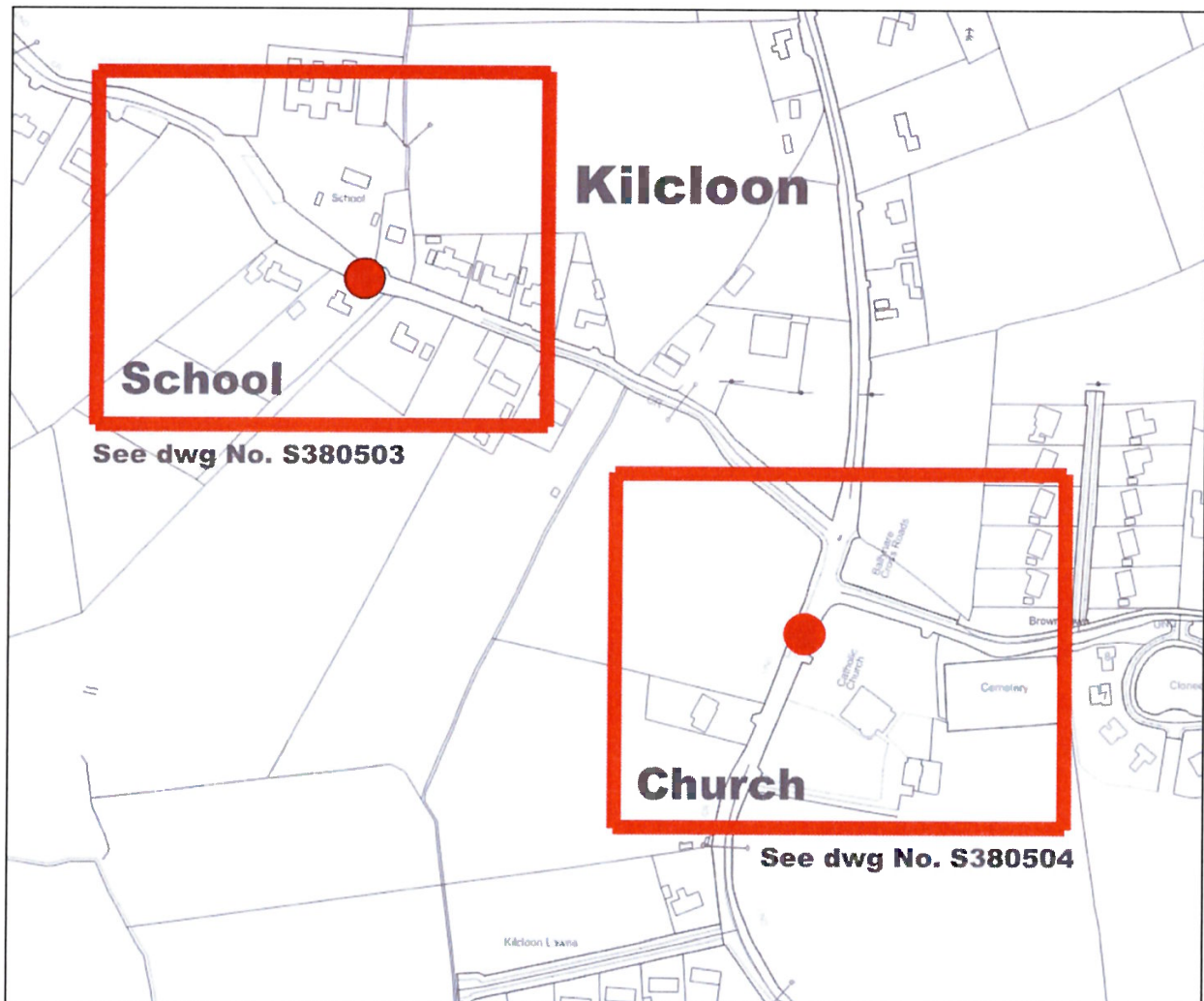


Figure 16: Proposed Site Location of Kilcloon Traffic Calming Scheme

Of particular importance to this assessment is the traffic calming proposed at the Catholic Church. The extent of proposed works at this location is shown in the figure overleaf, extracted from drawing number TRA-04-012-04-99-DG3804 of the Kilcloon Traffic Calming Scheme. Whilst these traffic calming works are not part of this SHD application, due consideration has been given to the impact of the works proposed by MCC.

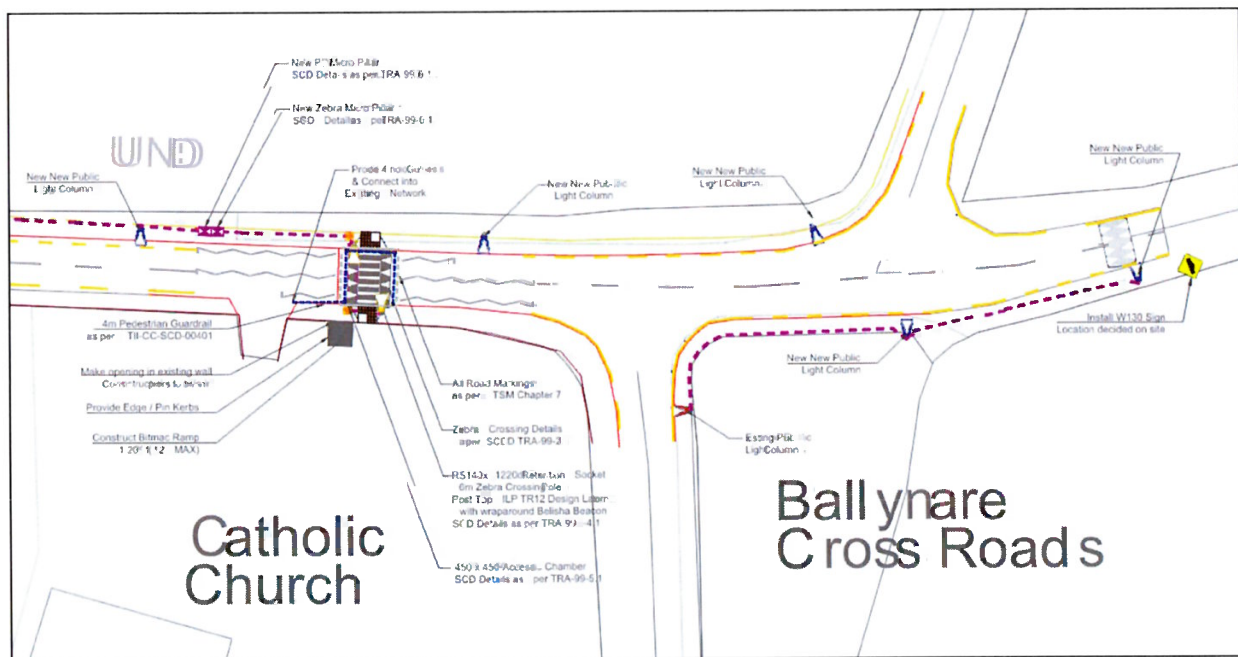


Figure 17: Extent of Traffic Calming Proposed at Kilcloon Catholic Church

Through discussions with MCC, it has been determined that these works are currently being tendered for, with tenders due from contractors on 11 August 2022. It is anticipated by MCC that all works will be completed by the end of November 2022, subject to receipt of a compliant tender.

In the interests of prudence, this traffic calming was not considered as part of the redistribution assessment so that a worst-case scenario could be assessed. The drawing pack for this scheme, as received from MCC, is included as *Appendix F* of this document.

The tables below show the vehicles travelling on these roads, as per the Vissim model, for all scenarios, and compare these volumes to the Do Nothing scenarios as a percentage increase/decrease:

Scenario	Year	Moyglare Road				L2214 – Kilcloon Road			
		North	%	South	%	North	%	South	%
Do Nothing	2019	50	-	131	-	54	-	116	-
	2023	64	-	174	-	59	-	145	-
	2028	70	-	186	-	59	-	155	-
	2038	67	-	188	-	75	-	162	-
Do Something	2023	59	-8%	166	-5%	69	17%	160	10%
	2028	72	3%	196	5%	72	22%	153	-1%
	2038	74	10%	204	9%	84	12%	178	10%
Do Max	2038	60	-10%	168	-11%	74	-1%	217	34%

Table 22: R156 Potential Traffic Redistribution - AM Peak

Scenario	Year	Moyglare Road				L2214 – Kilcloon Road			
		North	%	South	%	North	%	South	%
Do Nothing	2019	156	-	56	-	142	-	56	-
	2023	176	-	70	-	163	-	60	-
	2028	165	-	75	-	165	-	67	-
	2038	217	-	88	-	173	-	70	-
Do Something	2023	176	0%	74	6%	174	7%	66	10%
	2028	197	19%	77	3%	193	17%	76	13%
	2038	219	1%	87	-1%	198	14%	73	4%
Do Max	2038	215	-1%	75	-15%	182	5%	72	3%

Table 23: R156 Potential Traffic Redistribution - PM Peak

These results should be considered in the context of the link capacity. The table below indicates the available link capacity along Kilcloon Road, and the worst-case scenario volumes as per the scenarios shown in the table above.

Link	Width (m)	Link Capacity (veh/hr)	A.M. Peak (veh/hr)	RFC (%)	P.M. Peak (veh/hr)	RFC (%)
L2214 – Kilcloon Road – Do Nothing	5.00	1020	350	34%	158	15%
L2214 – Kilcloon Road – Do Maximum	5.00	1020	385	38%	160	16%

Table 24: Worst-Case Scenario (2040) Kilcloon Link Volumes

From the above tables, the following can be concluded:

- The volumes stay relatively consistent throughout the analysis years, as compared to the Do Nothing scenarios;
- An increase in the volumes of the Do Something and Do Maximum scenarios are to be expected as compared to the Do Nothing, as the development and masterplan trips are included;
- Compared to the Do Nothing scenarios within the same analysis years, the Do Something and Do Maximum scenarios have a negligible impact on Kilcloon Road;
- The table detailing link volumes shows that without specific development, just applying natural traffic growth as specific by TII will lead to a similar volume on this road as compared to the Do Maximum scenario;
- **The potential trip redistribution through Kilcloon due to the construction of the MOOR is negligible;**
- Furthermore, the expected impact will be further reduced with the inclusion of the Kilcloon Traffic Calming Scheme once it is implemented by MCC;

Redistribution to Maynooth

The second potential redistribution entails vehicles travelling through Maynooth towards their destination. Since the traffic along the L6219 and the R157 will increase, specifically at the junction between these two roads, there is a possibility that vehicles will opt to travel through Maynooth should the distance or travel time between their origins and destinations be similar. To assess this, a link was included between Zone 1 and Zone 8, through Maynooth. To simulate the cost of travelling through town, the speed of this road section was reduced to 20km/h. This section starts just north of the Maynooth Boys' National School and ends just east of the Carton Retail Park access.

The tables below show the vehicles travelling on this road for all scenarios, and compare these volumes to the Do Nothing scenarios as a percentage increase/decrease. It should be noted that junction surveys were not conducted within the town. The traffic on this link was estimated from the junction surveys at Moyglare Road and Moyglare Hall

Estate, and the R157 and R148. Although this does not represent an accurate volume of vehicles through town, the redistribution through town should be evident.

Scenario	Year	Maynooth Town Road			
		Southeast	%	Northwest	%
Do Nothing	2019	16	-	31	-
	2023	192	-	26	-
	2028	227	-	27	-
	2038	255	-	43	-
Do Something	2023	47	-76%	13	-50%
	2028	86	-62%	9	-67%
	2038	164	-36%	36	-16%
Do Max	2038	330	29%	9	-79%

Table 25: Maynooth Potential Traffic Redistribution - AM Peak

During the morning peak period, a large volume of vehicles will redistribute through Maynooth in the future Do Nothing scenarios. This is due to the lack of capacity at the junction between the L6219 and the R157. It is evident that with the upgrade of this junction, as part of this development, the increased capacity will counteract this redistribution leading to much less traffic travelling through town. This emphasises the benefit of this development to the town of Maynooth in future.

Scenario	Year	Maynooth Town Road			
		Southeast	%	Northwest	%
Do Nothing	2019	1	-	14	-
	2023	10	-	35	-
	2028	9	-	69	-
	2038	22	-	79	-
Do Something	2023	14	40%	46	31%
	2028	11	22%	62	-10%
	2038	46	109%	67	-15%
Do Max	2038	32	45%	369	367%

Table 26: Maynooth Potential Traffic Redistribution - PM Peak

The results from the afternoon peak period differ slightly. The demand at the junction between the L6219 and the R157 is less during this peak as compared to the morning, which means sufficient capacity is available. When considering the Opening Year and Design Year scenarios, the situation is relatively similar with an increase in the southeast direction and a decrease in the northwest direction as compared to the Do Nothing scenarios. Even though the percentages seem significant, the actual difference isn't substantial for these scenarios.

LINK CAPACITIES

For this study, and the context in which this area will transition from a more rural to a more urban setting due to the nature of the development, the links within the study area are assessed using an urban criterion.

TA 79/99 "Traffic Capacity of Urban Roads" from the DMRB provides information on the capacity of urban roads based on classification and width. Table 27 following shows the capacities of various road types based on this manual and using a 60:40 split in flow.

2 Way Single Carriageway – Busiest Direction of Flow (60/40 split)										
		Total Number of lanes								
		2				2-3	3	3-4	4	4+
Carriageway Width (m)		6.10	6.75	7.30	9.0	10.0		12.3	13.5	18.0
Road Type	UM	Not Applicable								
	UAP1	1020	1320	1590	1860	2010	2550	2800	3050	3300
	UAP2	1020	1260	1470	1550	1650	1700	1900	2100	2700
	UAP3	900	1110	1300	1530	1620	*	*	*	*
	UAP4	750	900	1140	1320	1410	*	*	*	*

Table 27: Urban Road Capacities

The local links have been classified based on the associated definitions in the DMRB. Using the previous table, link capacities have been calculated and current Ratio of Flow to Capacity (RFC) values have been assessed for the key links bordering the site.

It should be noted that given the variation in width across the links in question, an average figure for each has been used which is rounded down to the nearest value shown in the above table, thus ensuring a conservative assessment of link capacity.

These values were extracted from the Vissim model. The base year values are calibrated according to the junction surveys, with all future year traffic free to redistribute throughout the network, as detailed previously in this chapter.

Base Year (2019)

The Base Year RFC value for the links within the study area are shown in Table 28 below:

Link	Width (m)	Link Capacity (veh/hr)	A.M. Peak (veh/hr)	RFC (%)	P.M. Peak (veh/hr)	RFC (%)
Moyglare Road	6.00	1020	345	34%	339	33%
L6219	5.80	1020	429	42%	437	43%
L2214 – Kildoon Road	5.00	1020	116	11%	142	14%
R157 – Dunboyne Road	7.00	1320	368	28%	587	45%

Table 28: Base Year Link RFC Values for Local Network

The link capacities during the base year are sufficient to accommodate the traffic with the highest ratio of flow to capacity occurring in the afternoon peak period on the L6219 and R157, with a value of 45%.

Opening Year (2025)

The Opening Year Do Something scenario RFC value for the links within the study area are shown in Table 29 below:

Link	Width (m)	Link Capacity (veh/hr)	A.M. Peak (veh/hr)	RFC (%)	P.M. Peak (veh/hr)	RFC (%)
Moyglare Road	6	1260	920	73%	743	59%
L6219	7	1260	151	12%	222	18%
L2214 – Kildoon Road	5	1020	223	22%	244	24%
R157 – Dunboyne Road	7	1320	931	71%	892	68%

Table 29: Opening Year Do Something Link RFC Values for Local Network

For the Opening Year, the full MOOR will be in operation. Flow on the L6219 will be restricted by means of chicanes. Furthermore, the section of the L2214 which traverses the Masterplan site area only, will be converted into a north-to-south one-way street with the adjacent lane converted into a pedestrian and cycling facility. The highest ratio of flow to capacity will occur on Moyglare Road during the morning peak with a value of 73%.

Opening Year + 5 (2030)

The Opening Year + 5 Do Something scenario RFC value for the links within the study area are shown in Table 30 below:

Link	Width (m)	Link Capacity (veh/hr)	A.M. Peak (veh/hr)	RFC (%)	P.M. Peak (veh/hr)	RFC (%)
Moyglare Road	6.00	1260	945	75%	820	65%
L6219	7.00	1260	347	28%	284	23%
L2214 – Kilcloon Road	5.00	1020	225	22%	269	26%
R157 – Dunboyne Road	7.00	1320	1000	76%	1018	77%

Table 30: Opening Year + 5 Do Something Link RFC Values for Local Network

This scenario will utilise the same road infrastructure as the Opening Year scenario, with increased traffic due to additional masterplan developments. The highest ratio of flow to capacity will again be on the R157 during the afternoon peak with a value of 77%.

Design Year (2040)

The Design Year Do Something scenario RFC value for the links within the study area are shown in Table 31 below:

Link	Width (m)	Link Capacity (veh/hr)	A.M. Peak (veh/hr)	RFC (%)	P.M. Peak (veh/hr)	RFC (%)
Moyglare Road	6.00	1260	1021	81%	887	70%
L6219	7.00	1260	281	22%	264	21%
L2214 – Kilcloon Road	5.00	1020	262	26%	271	27%
R157 – Dunboyne Road	7.00	1320	1060	80%	1008	76%

Table 31: Design Year Do Something Link RFC Values for Local Network

The road network will be identical to the Opening Year + 5 (2030) network, again with additional developments. The highest ratio of flow to capacity will again be on Moyglare Road during the morning peak, with a value of 81%.

The links around the development will thus provide sufficient capacity for all scenarios.

JUNCTION CAPACITIES

The junction analysis was carried out using Vissim micro-simulation software as described earlier in this report. The scenarios in the table below correspond to the scenarios discussed in Chapter 3.

Analysis Criteria

The results of the intersection analysis will be based on a Level of Service (LOS) measurement, which uses measured delay experienced by a vehicle at the intersection and compares it to a scale of values defining the LOS. According to the National Roads Network Indicators 2019, published by TII, LOS is a quality measure describing operational conditions within a traffic stream and is a recognised international standard. The Level of Service (LOS) is based on the below, which has been taken from the Highway Capacity Manual (HCM) 2010. The type of intersection affects the allowable delay in each LOS bracket resulting in different values for a traffic signal and non-signalized intersection. An acceptable LOS is on an intersection where a LOS D and above (A, B and C) is achieved. An unacceptable LOS is represented by an E and an F.

LOS	Signalized Intersection	Unsignalized Intersection
A	≤10 sec	≤10 sec
B	10–20 sec	10–15 sec
C	20–35 sec	15–25 sec
D	35–55 sec	25–35 sec
E	55–80 sec	35–50 sec
F	>80 sec	>50 sec

Table 32: Level of Service (Exhibit 18-4, HCM 2010)

Saturation flow measurements are not a built-in feature of Vissim, because, unlike statistical models, micro-simulation models are not validated by degree of saturation, but rather by delays and queue lengths.

Junction 1 - Moyglare Road/L6219

This junction is currently operating as a priority-controlled staggered four-leg junction with the north-south movement (Moyglare Road) as the major road. The worst-performing movement at each approach, for each scenario, is shown in the table below.

Peak	Scenario		Year	Moyglare (N)		L6219 (E)		Moyglare (S)		Moyglare (W)	
				LOS	Queue	LOS	Queue	LOS	Queue	LOS	Queue
AM	1	DN	2019	A	0.01	A	0.21	A	0.00	A	0.51
	2	DN	2025	A	0.00	B	1.85	A	0.64	A	0.87
	3	DS	2025	A	0.00	A	0.43	A	0.33	A	1.27
	4	DN	2030	A	0.00	C	5.04	A	0.67	A	0.96
	5	DS	2030	A	0.01	A	1.40	A	0.74	A	1.31
	6	DN	2040	A	0.02	B	3.87	A	0.81	A	1.49
	7	DS	2040	A	0.04	A	0.91	A	0.19	A	2.08
	8	DM	2040	A	0.05	A	0.89	A	1.49	A	1.40
Peak	Scenario		Year	Moyglare (N)		L6219 (E)		Moyglare (S)		Moyglare (W)	
				LOS	Queue	LOS	Queue	LOS	Queue	LOS	Queue
PM	9	DN	2019	A	0.02	A	1.13	A	0.00	A	0.25
	10	DN	2025	A	0.05	A	3.47	A	0.04	A	0.27
	11	DS	2025	A	0.00	A	0.49	A	0.00	A	0.26
	12	DN	2030	A	0.06	A	3.07	A	0.14	A	0.29
	13	DS	2030	A	0.06	A	1.28	A	0.01	A	0.36
	14	DN	2040	A	0.02	B	4.40	A	0.09	A	0.39
	15	DS	2040	A	0.04	A	1.05	A	0.01	A	0.39
	16	DM	2040	A	0.00	A	3.36	A	0.84	A	0.35

Table 33: Junction 1 Analysis Results

The following conclusions can be drawn from the scenarios:

- **Do Nothing:** This junction performs adequately for all the analysed scenarios for DN, with no significant delays.
- **Do Something:** This junction performs adequately for all the analysed scenarios for DS, with no significant delays.

- Do Maximum: This junction performs adequately for the analysed scenarios of DM, with no significant delays.

Junction 2 - Moyglare Road/Mariavilla

This junction is currently operating as a priority-controlled T-junction with the north-south movement (Moyglare Road) as the major road. The worst-performing movement at each approach, for each scenario, is shown in the table below.

Peak	Scenario		Year	Moyglare (N)		Mariavilla (E)		Moyglare (S)	
				LOS	Queue	LOS	Queue	LOS	Queue
AM	1	DN	2019	A	0.00	A	0.17	A	0.02
	2	DN	2025	A	0.00	B	4.67	A	0.82
	3	DS	2025	A	0.00	C	15.57	A	0.47
	4	DN	2030	A	0.00	B	7.52	A	0.56
	5	DS	2030	A	0.04	C	8.62	A	0.88
	6	DN	2040	A	0.00	B	6.37	A	0.66
	7	DS	2040	A	0.00	C	9.88	A	0.57
	8	DM	2040	A	0.00	B	8.03	A	0.45
Peak	Scenario		Year	Moyglare (N)		Mariavilla (E)		Moyglare (S)	
				LOS	Queue	LOS	Queue	LOS	Queue
PM	9	DN	2019	A	0.00	A	0.11	A	0.10
	10	DN	2025	A	0.00	A	0.22	A	0.19
	11	DS	2025	A	0.00	A	0.25	A	0.13
	12	DN	2030	A	0.00	A	0.77	A	0.44
	13	DS	2030	A	0.00	B	0.53	A	0.15
	14	DN	2040	A	0.00	A	0.53	A	0.33
	15	DS	2040	A	0.00	A	0.69	A	0.22
	16	DM	2040	A	0.00	E	17.25	A	1.30

Table 34: Junction 2 Analysis Results

The following conclusions can be drawn from the scenarios:

- Do Nothing: This junction performs adequately for all the analysed scenarios for DN, with no significant delays.
- Do Something: This junction performs adequately for all the analysed scenarios for DS, with no significant delays.
- Do Maximum: There could be congestion at this junction during the afternoon peak on the eastern approach. This is mainly due to the majority of the masterplan trips being included in the analysis. However, as previously mentioned the traffic estimations for the masterplan is very conservative. It should be noted that this junction is earmarked to be upgraded as part of the extension of a section of the MOOR within County Kildare to the west, in future by Kildare County Council.

Junction 3 - L6219/L2214

This junction is currently operating as a priority-controlled T-junction with the east-west movement (L6219) as the major road. The worst performing movement at each approach, for each scenario, is shown in the table overleaf.

Peak	Scenario		Year	L6219 (W)		L2214 (N)		L6219 (E)	
				LOS	Queue	LOS	Queue	LOS	Queue
AM	1	DN	2019	A	0.00	A	0.22	A	0.06
	2	DN	2025	A	0.00	A	0.59	A	0.05
	3	DS	2025	A	0.00	A	0.0	A	0.0
	4	DN	2030	A	0.00	A	0.67	A	0.06
	5	DS	2030	A	1.23	C	0.97	A	0.00
	6	DN	2040	A	0.00	A	0.53	A	0.10
	7	DS	2040	A	1.23	C	0.97	A	0.00
	8	DM	2040	C	1.23	C	0.97	A	0.00
Peak	Scenario		Year	L6219 (W)		L2214 (N)		L6219 (E)	
				LOS	Queue	LOS	Queue	LOS	Queue
PM	9	DN	2019	A	0.00	A	0.12	A	0.03
	10	DN	2025	A	0.00	A	0.11	A	0.28
	11	DS	2025	A	0.00	A	0.02	A	0.00
	12	DN	2030	A	0.00	A	0.18	A	0.14
	13	DS	2030	A	0.00	A	0.15	A	0.00
	14	DN	2040	A	0.00	A	0.11	A	0.64
	15	DS	2040	A	0.00	A	0.15	A	0.00
	16	DM	2040	A	0.00	A	0.15	A	0.00

Table 35: Junction 3 Analysis Results - DN & DS

- **Do Nothing:** This junction performs adequately for all the analysed scenarios for DN, with no significant delays.
- It should be noted that this junction will be modified for the Do Something scenarios, as well as the Do Maximum scenario. Flows will be reduced on the L6219 by means of chicanes as this area will change from a rural to a more urban area post development, and the section of the L2214 which traverses the wider Masterplan site will be changed to a north-to-south one-way road with the adjacent lane converted to a pedestrian and cyclist facility.
- **Do Something:** This junction performs adequately for all the analysed scenarios for DS, with no significant delays.

- Do Maximum: This junction performs adequately for all the analysed scenarios for DM, with no significant delays.

Junction 4 - R157/L6219

This junction is currently operating as a priority-controlled T-junction with the north-west movement (R157) as the major road. The worst-performing movement at each approach, for each scenario, is shown in the table below. **It should be noted that this junction is earmarked to be signalised (do something layout) as part of the phase 1 office development as well as this application.** This means that only the Do Nothing scenarios were analysed with the aforementioned geometry.

Peak	Scenario		Year	R157 (E)		R157 (S)		L6219 (W)	
				LOS	Queue	LOS	Queue	LOS	Queue
AM	1	DN	2019	B	6.60	A	0.54	A	0.00
	2	DN	2025	C	13.46	A	1.34	A	0.00
	4	DN	2030	F	70.07	A	1.96	A	0.00
	6	DN	2040	F	151.12	A	4.00	A	0.00
Peak	Scenario		Year	R157 (E)		R157 (S)		L6219 (W)	
				LOS	Queue	LOS	Queue	LOS	Queue
PM	9	DN	2019	B	0.80	A	1.41	A	0.00
	10	DN	2025	C	1.41	A	3.55	A	0.00
	12	DN	2030	D	3.99	A	4.97	A	0.00
	14	DN	2040	D	4.93	A	7.56	A	0.00

Table 36: Junction 4 Analysis Results – DN

As can be seen from the previous table, the junction performs within acceptable levels during the Base Year, with delays being experienced on the eastern approach for all future analysis years during the morning peak.

For the Opening Year Do Something scenario, this junction will be upgraded to a four-leg signalised junction. Upgrading this junction will improve the delays to within acceptable levels, with the addition of the Do Something traffic volumes. As can be seen, the delays are improved compared to the Do Nothing scenarios, which emphasise the benefit of the development to the local road network. The four-leg junction layout is shown in the figure following:

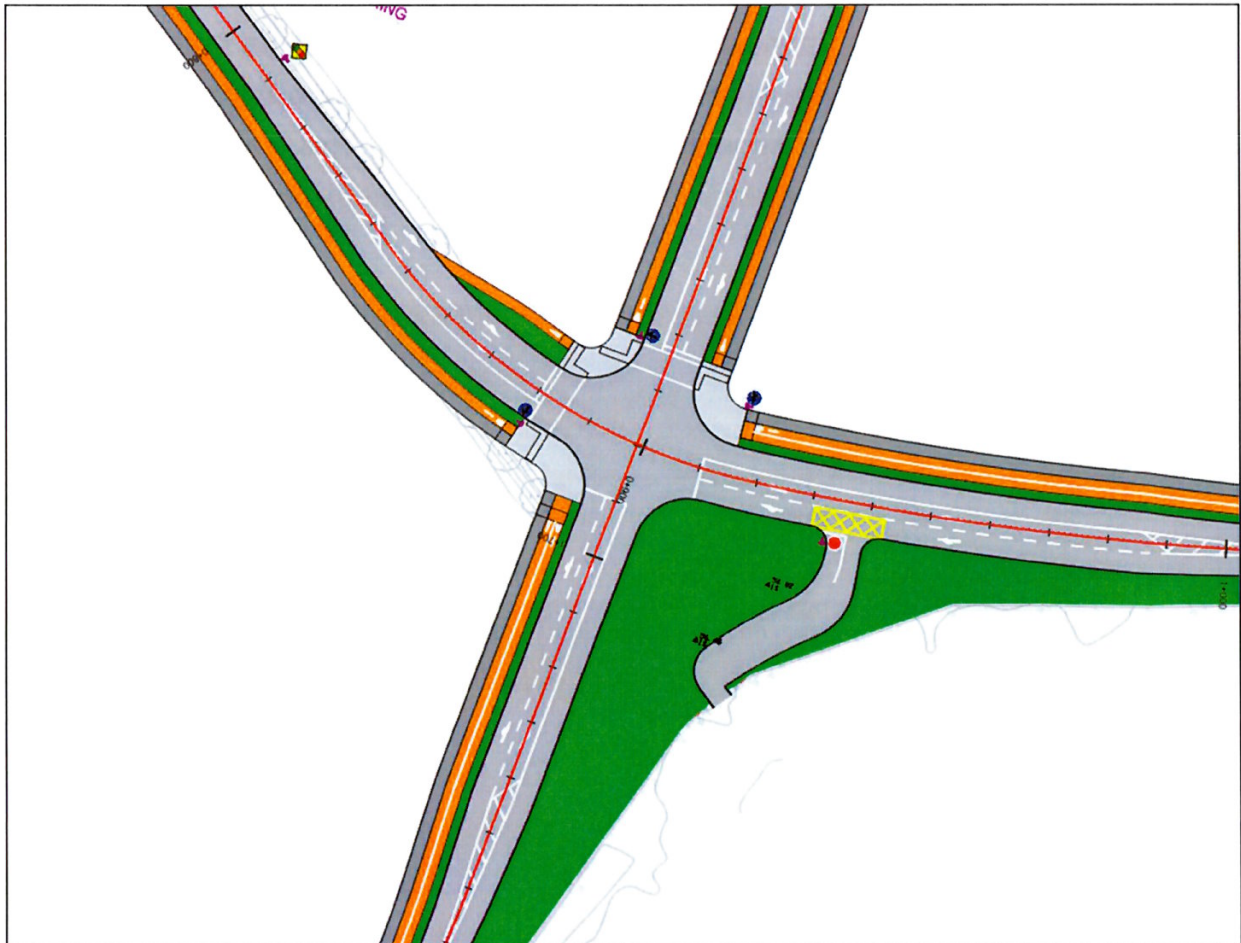


Figure 18: Junction 4 Do Something Layout

Peak	Scenario		Year	MOOR (N)		R157 (E)		R157 (S)		R6219 (W)	
				LOS	Queue	LOS	Queue	LOS	Queue	LOS	Queue
AM	3	DS	2025	C	21.07	D	17.29	C	16.04	D	2.48
	5	DS	2030	C	13.31	D	17.44	C	13.34	D	14.21
	7	DS	2040	D	29.41	D	24.46	D	42.42	D	5.07
	8	DM	2040	D	19.35	D	14.09	C	21.15	D	8.53
Peak	Scenario		Year	MOOR (N)		R157 (E)		R157 (S)		R6219 (W)	
				LOS	Queue	LOS	Queue	LOS	Queue	LOS	Queue
PM	9	DS	2025	C	3.91	C	22.44	C	14.24	C	3.60
	9	DS	2030	D	6.50	C	26.36	D	18.76	D	4.08
	13	DS	2040	C	5.83	C	31.38	C	16.69	C	4.99
	16	DM	2040	B	6.43	C	21.99	C	9.26	C	9.00

Table 37: Junction 4 Analysis Results – DM

The demand at this junction will be fairly high, due to the trips generated by additional developments within the masterplan. In addition, the traffic estimation for the Do Maximum scenario is very conservative as described previously in this document. To achieve acceptable levels of service at the junction during this scenario, an additional left-turning lane might be required on the northern approach, as well as an east-to-south (R157 to MOOR) left-turning slip lane.

According to the layout of the current development proposals, there will be sufficient space available to implement these infrastructural upgrades, should they be required in the future. However, each masterplan development will be applied for separately, and these further upgrades will be identified as part of those future applications, if required.

Junction 5 - R157/Dunboyne Road

This junction is currently operating as a three-leg roundabout. The worst-performing movement at each approach, for each scenario, is shown in the table below.

Peak	Scenario		Year	R157 (N)		R157 (S)		Dunboyne Road (W)	
				LOS	Queue	LOS	Queue	LOS	Queue
AM	1	DN	2019	A	0.44	A	0.20	A	0.82
	2	DN	2025	A	0.89	A	0.50	A	0.74
	3	DS	2025	A	2.40	A	0.54	A	1.08
	4	DN	2030	A	0.97	A	0.72	A	1.18
	5	DS	2030	A	3.56	A	1.16	A	1.26
	6	DN	2040	A	1.32	A	1.25	A	1.50
	7	DS	2040	C	14.50	A	3.20	A	2.75
	8	DM	2040	A	1.30	B	33.46	D	22.14
Peak	Scenario		Year	R157 (N)		R157 (S)		Dunboyne Road (W)	
				LOS	Queue	LOS	Queue	LOS	Queue
PM	9	DN	2019	A	0.37	A	0.58	A	0.25
	10	DN	2025	A	0.44	A	1.48	A	0.31
	11	DS	2025	A	3.23	A	1.18	A	0.48
	12	DN	2030	A	0.66	A	1.17	A	0.44
	13	DS	2030	A	3.50	A	3.90	A	0.41
	14	DN	2040	A	1.22	A	1.77	A	0.41
	15	DS	2040	B	5.61	A	3.09	A	0.52
	16	DM	2040	A	2.76	A	1.76	A	0.29

Table 38: Junction 5 Analysis Results

The following conclusions can be drawn from the scenarios:

- **Do Nothing:** This junction performs adequately for all the analysed scenarios for DN, with no significant delays.

- **Do Something:** This junction performs adequately for all the analysed scenarios for DS, with no significant delays.
- **Do Maximum:** This junction performs adequately for the analysed scenarios of DM, with no significant delays.

Junction 6 - R148/R157

This junction is currently operating as a priority-controlled T-junction with the east-west movement (R148) as the major road. The worst performing movement at each approach, for each scenario, is shown in the table overleaf.

Peak	Scenario		Year	R157 (N)		R148 (E)		R148 (W)	
				LOS	Queue	LOS	Queue	LOS	Queue
AM	1	DN	2019	A	0.82	A	0.50	A	0.00
	2	DN	2025	C	4.28	A	3.00	A	0.00
	3	DS	2025	C	7.24	A	2.00	A	0.00
	4	DN	2030	C	6.14	A	2.40	A	0.00
	5	DS	2030	C	5.52	A	1.76	A	0.00
	6	DN	2040	C	5.90	A	3.76	A	0.00
	7	DS	2040	F	46.98	C	14.99	A	0.00
	8	DM	2040	D	13.42	C	20.20	A	0.00
Peak	Scenario		Year	R157 (N)		R148 (E)		R148 (W)	
				LOS	Queue	LOS	Queue	LOS	Queue
PM	9	DN	2019	B	2.00	A	2.34	A	0.00
	10	DN	2025	D	5.70	B	10.91	A	0.00
	11	DS	2025	D	9.45	A	5.04	A	0.00
	12	DN	2030	E	14.56	B	16.58	A	0.00
	13	DS	2030	F	42.16	C	18.82	A	0.00
	14	DN	2040	F	24.45	C	26.91	A	0.00
	15	DS	2040	F	141.53	C	27.97	A	0.00
	16	DM	2040	F	115.77	A	4.82	A	0.00

Table 39: Junction 6 Analysis Results

The following conclusions can be drawn from the scenarios:

- Do Nothing: This junction performs adequately for all morning peak scenarios of the DN. During the afternoon peak, delays occur on the northern approach in 2030 and 2040.
- Do Something: The junction performs adequately during the morning peak period for all analysis years aside from the Design Year, during which some congestion is experienced on the northern approach. During the afternoon peak, congestion could be present on the northern approach for most of the analysed scenarios.
- Do Maximum: Delays will be present on the northern approach during the morning peak period.

It should be noted that this junction is earmarked for upgrading as part of Kildare County Council's proposal for the Maynooth Eastern Ring Road (MERR) scheme, which will increase the capacity. The junction is poised to be upgraded to a four-leg signalised junction.

This upgrade should address all the identified capacity problems.

MOOR Junctions

The additional junctions to be constructed as part of the MOOR, not included in the previous analysis, are shown in the figure overleaf.



Figure 19: Access Junctions

Junction 7: L6219/Mariavilla Access Road

This is a new junction that will be constructed with the extension of the Mariavilla Access Road to the R6219, as shown in Figure 19. The junction will operate as a priority-controlled T-junction with the east-west movement (Mariavilla Access Road/MOOR) as the major road. The worst performing movement at each approach, for each scenario, is shown in the table below.

Peak	Scenario		Year	L6219 (N)		MOOR (E)		Mariavilla (W)	
				DOS	Queue	DOS	Queue	DOS	Queue
AM	3	DS	2025	A	0.18	A	0.22	-	-
	5	DS	2030	A	0.75	A	0.25	-	-
	7	DS	2040	A	2.06	A	0.21	-	-
	8	DM	2040	A	0.53	A	0.18	-	-
Peak	Scenario		Year	L6219 (N)		MOOR (E)		Mariavilla (W)	
				DOS	Queue	DOS	Queue	DOS	Queue
PM	11	DS	2025	A	0.05	A	0.31	-	-
	13	DS	2030	A	0.17	A	0.13	-	-
	15	DS	2040	A	0.17	A	0.48	-	-
	16	DM	2040	B	93.00	A	1.26	-	-

Table 40: Junction 7 – Worst DoS & Queue Results

This junction will function adequately for all scenarios.

Junction 14 – MOOR/R6219

This junction will be included as part of the build-out of the MOOR, as shown in Figure 19. The junction will operate as a priority-controlled T-junction with the east-west movement (MOOR) as the major road. The worst-performing movement at each approach is shown in the table below.

Peak	Scenario		Year	MOOR (E)		R6219 (S)		MOOR (W)	
				LOS	Queue	LOS	Queue	LOS	Queue
AM	3	DS	2025	-	-	A	0.18	A	0.02
	5	DS	2030	-	-	A	0.37	A	1.15
	7	DS	2040	-	-	A	0.32	A	1.05
	8	DM	2040	-	-	A	0.51	A	0.20
Peak	Scenario		Year	MOOR (E)		R6219 (S)		MOOR (W)	
				LOS	Queue	LOS	Queue	LOS	Queue
PM	11	DS	2025	-	-	A	0.12	A	0.28
	13	DS	2030	-	-	A	0.29	A	0.64
	15	DS	2040	-	-	A	0.66	A	1.18
	16	DM	2040	-	-	A	0.21	A	1.28

Table 41: Junction 14 – Worst DoS & Queue Results

This junction will function adequately for all scenarios.

Junction 16 – MOOR/L2214

This junction will be included as part of the build-out of the MOOR, as shown in Figure 19. The junction will operate as a traffic signal controlled four-leg junction. The southern approach (L2214) will be a one-way exit road only. The worst-performing movement at each approach is shown in the table below.

Peak	Scenario		Year	L2214 (N)		MOOR (E)		L2214 (S)		MOOR (W)	
				LOS	Queue	LOS	Queue	LOS	Queue	LOS	Queue
AM	3	DS	2025	C	8.11	B	4.45	-	-	B	12.21
	5	DS	2030	D	8.70	B	7.34	-	-	B	12.94
	7	DS	2040	C	10.53	B	6.31	-	-	B	7.94
	8	DM	2040	D	10.50	B	6.48	-	-	B	14.16
Peak	Scenario		Year	L2214 (N)		MOOR (E)		L2214 (S)		MOOR (W)	
				LOS	Queue	LOS	Queue	LOS	Queue	LOS	Queue
PM	9	DS	2025	D	3.02	B	8.46	-	-	B	2.96
	9	DS	2030	D	3.68	B	13.29	-	-	B	4.36
	13	DS	2040	D	3.30	B	15.45	-	-	B	4.22
	16	DM	2040	C	2.90	B	19.63	-	-	B	7.47

Table 42: Junction 14 – Worst DoS & Queue Results

This junction will function adequately for all scenarios.

8 REMEDIAL/MITIGATION MEASURES

The previous chapter details the link and junction analysis. From this, it is evident that all links will have sufficient capacity for each analysis period. In terms of junctions, no remedial measures are required during the Opening Year (2025), aside from the upgrading of junction 4 (R157/L6219) which is already discussed in this report.

There could potentially be some congestion present at Junctions 2 and 6 in future, however, these junctions are already earmarked to be upgraded as part of other road projects.

Junction 2 will be upgraded as part of the extension of a section of the MOOR within County Kildare to the west, in future by Kildare County Council.

Junction 6 will be upgraded as part of Kildare County Council's proposal for the Maynooth Eastern Ring Road (MERR) scheme, which will increase the capacity.

9 VERIFICATION

This report was compiled and verified by:

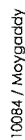
Wian Marais BE (US), BE (Hons) (UP), Professional Engineer (ECSA)

Civil Engineer

O'Connor Sutton Cronin & Associates



Appendix A **TRAFFIC SURVEY DATA**



10084 / Moygaddy

Junction Turning Count

Site No.

Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)

Tuesday 28 May 2019

Time	A to D - Mergers (Profit) to Anywhere (Profit)					A to C - Mergers (Profit) to Anywhere (Profit)					Ven. Total				
	CAS	Ton	LGN	HGV	PST	MVC	PST	MVC	PST						
7:00	13	1	4	0	0	0	0	18	16	0	5	1	0	1	23
7:15	17	0	2	0	0	0	0	19	19	0	7	1	0	0	27
7:30	20	0	0	0	0	0	0	20	17	0	7	4	0	0	28
7:45	11	0	2	1	0	0	1	15	15	0	1	0	0	1	17
8:00	13	0	0	0	0	0	1	13	14	0	3	3	0	0	17
8:15	21	0	0	0	0	0	0	21	28	0	2	0	1	0	31
8:30	10	0	2	0	0	0	0	12	22	0	2	0	0	0	24
8:45	12	0	1	0	0	0	0	13	26	0	0	5	0	0	22
9:00	7	0	0	0	0	0	0	7	12	0	1	2	0	0	14
9:15	14	0	0	0	0	0	0	14	18	0	0	1	0	0	19
9:30	8	0	2	0	0	0	0	10	13	1	0	2	0	0	16
9:45	8	0	0	1	0	0	0	9	15	0	2	0	0	0	17
10:00	3	0	1	0	0	0	0	4	5	0	0	3	0	0	8
10:15	6	0	0	1	0	0	0	7	7	0	2	0	0	0	9
10:30	2	1	1	0	0	0	0	4	10	0	3	0	0	0	13
10:45	7	0	0	1	0	0	0	8	9	0	1	2	0	0	12
11:00	2	0	1	0	0	0	0	3	5	0	1	1	0	0	7
11:15	2	0	1	0	0	0	0	3	9	0	0	3	0	0	15
11:30	2	0	1	0	0	0	0	3	8	0	1	2	0	0	11
11:45	5	0	0	0	0	0	0	5	4	0	1	2	0	0	7
12:00	3	0	1	1	0	0	0	5	7	0	1	0	0	0	8
12:15	1	0	1	1	0	0	0	4	10	0	1	0	0	0	11
12:30	6	0	0	0	0	0	0	6	6	0	1	1	0	0	8
12:45	3	0	1	0	0	0	0	4	9	0	0	2	0	0	11
13:00	3	0	1	0	0	0	0	4	1	1	1	0	0	0	3
13:15	3	0	0	0	0	0	0	3	8	0	0	1	0	0	9
13:30	6	0	1	1	0	0	0	8	3	0	0	3	0	0	6
13:45	5	0	1	0	0	0	0	6	10	0	1	1	0	0	12
14:00	0	0	1	0	0	0	0	1	12	0	2	0	0	0	14
14:15	5	0	0	0	0	0	0	5	6	0	0	0	0	0	6
14:30	7	0	0	0	0	0	0	7	8	0	2	2	0	0	13
14:45	3	1	0	0	0	0	0	4	8	0	0	2	0	0	10
15:00	4	0	3	0	0	0	0	7	11	0	1	3	0	0	15
15:15	3	0	0	0	0	0	0	4	5	1	2	2	0	0	10
15:30	2	0	1	1	0	0	0	3	9	0	1	1	0	0	11
15:45	4	0	1	0	0	0	0	5	15	0	1	1	0	0	17
16:00	3	0	0	0	0	0	0	3	10	0	4	0	0	0	14
16:15	2	0	0	0	0	0	0	2	7	0	0	0	1	0	8
16:30	7	0	0	1	0	0	0	8	6	0	1	0	0	0	10
16:45	4	0	0	0	0	0	0	4	9	0	0	1	0	0	10
17:00	5	0	0	0	0	0	0	5	7	0	3	0	0	0	10
17:15	3	0	1	0	0	0	0	4	5	0	4	0	0	0	9
17:30	5	0	0	0	0	0	0	5	10	0	3	0	0	0	13
17:45	4	0	1	0	0	0	0	5	10	1	1	0	0	0	12
18:00	5	0	0	0	0	0	0	5	5	0	0	0	0	0	5
18:15	2	0	0	0	0	0	0	2	13	1	1	2	0	0	17
18:30	6	0	1	0	0	0	0	1	8	8	1	2	1	0	0
18:45	7	2	0	0	0	0	0	3	44	0	0	0	0	0	12
19:00	294	3	33	11	0	0	0	3	407	4	71	55	3	9	438



	Sites / Location:	1 to 6 / Mayaguddy	Project No:	1084	Diagram No:	1084-01	Drawn By:	AC
	Survey Date:	Tuesday 28th May 2019						
	Survey Times:	07:00 to 19:00						
			Project Name:		MOYGADDY			
			Diagram Title:		General Location Plan			



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 1
Location Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)
Date Tuesday 28 May 2019

Time	A to B - Moyglare Road(N) to Moyglare Road(W)							Veh. Total	B to A - Moyglare Road(W) to Moyglare Road(N)							Veh. Total		
	CAR	Taxi	LGV	HGV	PSV	M/C	P/C		CAR	Taxi	LGV	HGV	PSV	M/C	P/C			
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2
9:00	2	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
9:15	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
9:30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
12:30	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1
12:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
13:00	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	4
13:15	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
13:30	2	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1
13:45	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1
14:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
15:30	1	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	2
15:45	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
15:50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
16:15	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	1
16:30	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1
16:45	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
17:00	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2
17:15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1
17:45	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
18:30	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
18:45	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4
25:75	31	0	10	2	0	0	0	0	34	0	10	4	0	0	0	0	0	49



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 1
Location Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)
Date Tuesday 28 May 2019

Date	Time	B to D - Moyglare Road(W) to Moyglare Road(E)						D to B - Moyglare Road(E) to Moyglare Road(W)						Veh. Total	PG	
		CAR	Taxi	LGV	HGV	PSV	M/C	CAR	Taxi	LGV	HGV	PSV	M/C			
25.7.25	7:00	44	0	7	2	0	0	0	53	3	0	2	0	0	0	0
	7:15	56	0	14	0	0	0	0	70	4	0	4	0	0	0	0
	7:30	63	0	12	1	0	0	0	76	5	0	1	2	0	0	0
	7:45	51	1	7	1	0	0	0	60	9	0	2	0	0	0	0
	8:00	54	0	7	1	0	0	0	62	7	0	1	0	0	0	0
	8:15	65	0	3	2	0	0	0	70	7	0	1	0	0	0	0
	8:30	27	0	2	0	0	0	0	29	12	0	0	0	0	0	0
	8:45	30	0	2	2	0	1	0	35	7	0	2	0	0	0	0
	9:00	30	1	2	2	0	0	0	35	6	0	0	1	0	0	0
	9:15	18	0	3	0	0	0	0	23	6	0	1	1	0	0	0
	9:30	16	0	0	1	0	0	0	17	2	0	1	1	0	0	0
	9:45	9	0	1	1	0	0	0	11	2	0	1	0	0	0	0
	10:15	7	0	4	0	0	0	0	11	2	0	0	0	0	0	0
	10:30	5	0	0	0	0	0	0	7	8	0	1	0	0	0	0
	10:45	6	1	2	0	0	0	0	5	4	0	0	0	0	0	0
	11:00	6	0	1	1	0	0	0	8	1	1	1	1	0	0	0
	11:15	9	0	3	0	0	0	0	12	4	0	0	1	0	0	0
11:30	4	0	0	1	0	0	0	5	2	0	0	0	0	0	0	
11:45	6	1	2	0	0	0	0	9	2	0	0	0	0	0	0	
12:00	9	0	1	0	0	0	0	10	0	0	0	0	0	0	0	
12:15	6	0	1	0	0	0	0	7	2	0	0	0	0	0	0	
12:30	9	0	2	0	0	0	0	12	1	0	2	1	0	0	0	
12:45	6	0	0	0	0	0	0	6	1	0	0	0	0	0	0	
13:00	10	0	2	2	0	0	0	14	3	0	0	0	0	0	0	
13:15	5	0	1	1	0	0	0	7	5	0	0	0	0	0	0	
13:30	10	0	2	0	0	0	0	12	1	0	0	0	0	0	0	
13:45	6	0	1	0	0	0	3	10	5	0	0	1	0	0	0	
14:00	6	0	0	0	2	0	0	9	7	0	1	0	0	0	0	
14:15	11	0	0	1	0	0	0	12	3	0	1	0	0	0	0	
14:30	7	0	0	1	0	0	0	8	3	0	1	0	0	0	0	
14:45	15	0	3	0	0	0	0	18	3	1	1	0	0	0	0	
15:00	6	0	2	0	0	0	0	6	3	0	0	0	0	0	0	
15:15	6	0	0	0	0	0	0	6	1	0	1	0	0	0	0	
15:30	11	0	0	0	0	0	0	11	6	0	0	0	0	0	0	
15:45	3	0	0	0	0	0	0	4	2	0	0	0	0	0	0	
16:00	9	0	4	0	0	0	0	13	3	0	0	1	0	0	0	
16:15	18	0	1	0	0	0	2	21	1	0	4	0	0	0	0	
16:30	12	0	2	0	0	0	0	14	4	0	1	0	0	0	0	
16:45	9	0	0	0	0	0	0	9	1	0	0	0	0	0	0	
17:00	14	0	5	0	0	0	0	19	1	0	0	0	0	0	0	
17:15	13	0	0	0	0	0	0	13	1	0	0	0	0	0	0	
17:30	10	0	4	0	0	0	0	14	2	0	1	0	0	0	0	
17:45	4	0	2	0	0	0	0	6	6	0	0	0	0	0	0	
18:00	12	0	0	0	0	0	0	12	3	0	0	0	0	0	0	
18:15	10	0	1	0	0	0	0	11	4	0	0	0	0	0	0	
18:30	8	0	2	1	0	0	0	11	3	0	0	0	0	0	0	
18:45	6	0	1	0	0	0	0	7	1	0	0	0	0	0	0	
25.7.25	764	3	114	24	0	0	4	6	915	171	2	30	12	0	0	5
																220



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 10084 / Moygaddy
Location Maygaddy
Date Tuesday, 28 May 2019

Date	Time	D to B - Moyglare Road(E) to Moyglare Road(W)					D to A - Moyglare Road(E) to Moyglare Road(N)					Veh. Total	P/C			
		CAR	Tot	LGV	HGV	PSV	M/C	P/C	CAR	Tot	LGV			HGV	PSV	M/C
17/04/2024	7:00	1	0	3	0	0	0	0	4	0	0	0	0	0	1	
	7:15	2	0	0	0	0	0	0	2	0	0	0	0	0	1	
	7:30	6	0	4	1	0	0	0	11	0	0	0	0	0	2	
	7:45	4	0	1	0	0	0	0	5	0	1	0	0	0	1	
	8:00	7	0	2	0	0	0	0	9	0	1	0	0	0	4	
	8:15	8	0	2	2	0	0	0	12	0	0	0	0	0	5	
	8:30	13	0	1	0	0	0	0	14	0	0	0	0	0	7	
	8:45	5	0	2	2	0	0	0	9	0	1	0	0	0	6	
	9:00	6	0	1	0	0	0	0	7	0	0	0	0	0	4	
	9:15	6	0	1	0	0	0	0	8	0	2	1	0	0	5	
18/04/2024	9:30	9	0	1	0	0	0	0	10	0	0	0	0	0	5	
	9:45	4	0	1	0	0	0	0	5	0	0	0	0	0	3	
	10:00	3	0	1	0	0	0	0	4	0	1	0	0	0	4	
	10:15	6	0	1	0	0	0	0	7	0	0	0	0	0	1	
	10:30	1	0	0	2	0	0	1	4	0	1	0	0	0	4	
	10:45	2	0	2	1	0	0	0	5	0	0	1	0	0	6	
	11:00	7	0	3	1	0	0	0	11	5	0	0	1	0	2	
	11:15	2	0	1	1	0	0	0	4	0	0	0	0	0	6	
	11:30	13	0	1	0	0	0	0	14	0	1	0	0	0	3	
	11:45	5	0	1	1	0	0	0	7	6	0	1	0	0	7	
19/04/2024	12:00	11	0	1	0	0	0	0	12	5	0	0	0	0	7	
	12:15	7	0	2	1	0	0	0	10	5	0	0	0	0	3	
	12:30	7	0	0	1	0	0	2	10	5	0	0	0	0	7	
	12:45	9	0	3	1	0	0	1	14	5	1	0	0	0	6	
	13:00	7	0	1	0	0	0	1	8	0	0	0	0	0	7	
	13:15	7	0	0	1	0	0	0	8	4	1	0	0	0	5	
	13:30	6	1	2	0	0	0	0	10	7	0	1	0	0	9	
	13:45	8	0	1	0	0	0	0	9	3	0	1	0	0	5	
	14:00	13	0	4	0	0	0	0	17	8	0	0	0	0	8	
	14:15	12	0	1	2	0	0	0	15	0	0	0	0	0	5	
20/04/2024	14:30	4	0	0	0	0	0	0	4	10	0	1	0	0	11	
	14:45	14	0	0	0	0	0	0	14	7	0	1	0	0	9	
	15:00	19	0	0	0	0	0	0	20	10	0	0	0	0	10	
	15:15	24	1	4	0	0	0	0	29	7	0	1	0	0	9	
	15:30	25	1	0	0	0	0	0	27	5	0	0	0	0	6	
	15:45	24	1	2	0	0	0	0	27	3	0	0	0	0	6	
	16:00	25	0	8	0	0	0	0	33	0	0	2	0	0	11	
	16:15	35	0	4	1	0	0	0	41	10	0	0	0	0	11	
	16:30	43	1	2	2	0	0	0	49	11	0	1	0	0	13	
	16:45	50	0	7	1	0	0	0	58	7	0	1	0	0	8	
21/04/2024	17:00	37	0	7	0	0	0	0	44	15	1	3	1	0	20	
	17:15	40	0	7	0	0	0	0	47	17	0	1	1	0	0	
	17:30	43	0	5	0	0	0	0	48	14	0	0	0	0	19	
	17:45	36	1	6	0	0	0	0	43	13	0	1	0	0	14	
	18:00	46	0	7	1	0	0	0	57	13	0	0	0	0	17	
	18:15	44	0	7	1	0	0	0	52	6	0	0	0	0	8	
	18:30	26	0	3	0	0	0	0	30	13	0	0	0	0	13	
	18:45	25	0	6	0	0	0	0	31	6	0	0	0	0	9	
	25:75	763	7	118	27	0	3	8	926	276	4	37	19	0	0	337



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 10084 / Moygaddy
Location Maygaddy
Date Tuesday, 28 May 2019

Time	To Arm A - Moyglare Road(N)							From Arm A - Moyglare Road(N)							Veh. Total	P/C	M/C	P/SV	HGV	LGV	Tol	CAR	Veh. Total	P/C	M/C	P/SV	HGV	LGV	Tol	CAR	Veh. Total
	CAR	Tol	LGV	HGV	PSV	M/C	P/C	CAR	Tol	LGV	HGV	PSV	M/C	P/C																	
7:00	5	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
7:15	8	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
7:30	3	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
7:45	7	0	3	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
8:00	6	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
8:15	4	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
8:30	12	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
8:45	13	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
9:00	10	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
9:15	11	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
9:30	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
9:45	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
10:00	12	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
10:15	11	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
10:30	4	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
10:45	12	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
11:00	10	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
11:15	8	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
11:30	6	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
11:45	14	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
12:00	17	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
12:15	11	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
12:30	19	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
12:45	11	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
13:00	18	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
13:15	19	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
13:30	17	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
13:45	14	1	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
14:00	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
14:15	17	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
14:30	19	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
14:45	15	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
15:00	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
15:15	18	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
15:30	14	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
15:45	16	0	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
16:00	27	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
16:15	38	0	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
16:30	28	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
16:45	27	0	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
17:00	34	1	8	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
17:15	40	0	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
17:30	1730	40	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
17:45	42	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
18:00	26	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
18:15	19	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
18:30	27	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
18:45	22	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
25:75	799	8	123	75	1	2	9	107	817	9	114	65	3	2	12	1025															

Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)
Tuesday 28 May 2019

[illegible]

1 Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)
Tuesday 28 May 2019

Date	Tuesday 23 May 2019														Veh. Total
	To Arm C - Maygare Road[S]							From Arm C - Maygare Road[S]							
Time	CAR	Total	LGV	HGV	PSV	M/C	P/C	CAR	Total	LGV	HGV	PSV	M/C	P/C	
7:00	28	0	13	1	0	1	0	16	0	5	0	0	0	0	
7:15	30	0	15	2	0	0	0	47	26	0	3	2	0	0	
7:30	39	0	10	6	0	0	0	55	32	0	3	3	0	0	
7:45	52	0	5	2	0	1	0	60	25	0	2	6	1	0	
8:00	38	0	6	5	0	0	1	50	28	1	4	1	0	0	
8:15	71	0	7	2	1	0	0	81	40	0	3	0	0	43	
8:30	76	1	4	0	1	0	0	82	71	0	4	2	1	0	
8:45	71	0	4	7	1	0	1	84	51	2	3	2	0	0	
9:00	67	0	5	6	0	0	1	79	35	0	2	5	1	0	
9:15	59	0	2	2	0	0	1	64	31	3	0	3	0	0	
9:30	41	3	1	3	0	0	1	49	23	0	5	3	0	0	
9:45	31	0	3	2	0	0	0	36	13	1	3	3	0	0	
10:00	21	0	0	5	0	0	0	26	25	0	1	3	0	1	
10:15	24	0	6	0	0	0	0	30	11	0	4	2	0	0	
10:30	23	0	4	1	0	0	0	28	9	1	4	1	0	0	
10:45	24	2	4	4	0	0	0	34	27	0	6	3	0	0	
11:00	20	0	4	3	0	0	0	27	26	1	2	3	0	1	
11:15	19	0	1	4	0	0	4	28	25	1	5	4	0	0	
11:30	38	0	4	3	0	0	0	45	24	0	0	6	0	0	
11:45	38	0	3	3	0	0	0	44	24	0	2	1	0	0	
12:00	31	0	2	12	0	0	0	34	26	0	3	1	0	0	
12:15	35	0	1	1	0	0	1	38	22	1	6	1	0	0	
12:30	18	0	5	3	0	0	0	26	28	0	1	1	0	0	
12:45	17	0	2	3	0	0	0	22	21	0	1	3	0	0	
13:00	17	1	4	1	0	0	0	23	22	0	2	0	0	0	
13:15	31	0	4	2	0	0	0	37	30	0	3	4	0	0	
13:30	24	1	3	3	0	0	0	31	37	0	2	3	0	1	
13:45	39	1	1	2	0	0	0	43	22	2	5	1	0	0	
14:00	37	0	8	0	0	0	1	46	24	1	3	3	0	0	
14:15	29	0	1	1	0	0	0	30	47	0	1	0	0	0	
14:30	28	0	3	3	0	0	2	36	34	0	5	0	0	0	
14:45	63	1	1	5	0	0	0	70	32	1	5	0	1	0	
15:00	37	0	2	4	0	0	0	43	45	0	4	2	0	1	
15:15	30	2	3	2	0	0	0	37	33	1	4	5	0	0	
15:30	47	4	2	1	0	0	0	54	21	0	6	1	0	0	
15:45	46	0	3	1	1	0	0	51	42	0	9	2	0	1	
16:00	48	0	7	2	0	0	0	57	47	0	4	2	0	0	
16:15	29	0	6	1	1	0	0	37	64	0	9	2	1	0	
16:30	40	0	8	1	1	0	0	50	48	0	9	1	0	0	
16:45	52	0	4	1	1	0	0	58	43	0	9	2	0	0	
17:00	44	0	7	1	0	0	1	53	55	0	6	2	0	1	
17:15	47	0	7	0	0	0	0	54	76	0	11	1	0	0	
17:30	57	0	7	1	0	0	0	65	65	0	7	0	0	1	
17:45	66	2	5	0	0	0	0	73	70	0	3	1	0	0	
18:00	55	0	2	1	0	0	0	56	31	4	3	1	0	0	
18:15	58	1	5	2	0	0	0	66	36	1	4	0	0	1	
18:30	38	3	3	2	0	0	1	47	34	0	4	0	0	0	
18:45	51	0	2	0	0	0	1	54	29	1	2	0	0	2	
22:75	924	22	208	106	7	9	16	2084	944	99	164	67	7	3	
22:75	194	22	208	106	7	9	16	2084	944	99	164	67	7	3	

Site No. 1
Location Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)
Date Tuesday 28 May 2019

Date	Tuesday 22nd May 2017					Wednesday 23rd May 2017					Veh. Total	From Arm D - Moyglare Road(E)					P/C	Veh. Total
	CAR	Taxi	LGV	HGV	P/C	CAR	Taxi	LGV	HGV	P/C		CAR	Taxi	LGV	HGV	P/C		
7:00	69	1	15	2	0	109	11	9	4	0	20	0	4	2	0	33		
7:15	91	0	17	1	0	109	10	0	6	1	16	0	4	2	0	33		
7:30	112	0	12	2	0	126	26	6	1	0	20	0	6	1	0	33		
7:45	81	1	9	2	0	94	32	0	4	2	39	0	4	2	0	39		
8:00	90	1	9	2	0	102	27	0	5	2	34	0	5	2	0	34		
8:15	121	0	4	2	0	127	44	0	6	3	53	0	6	3	0	53		
8:30	94	0	6	1	0	104	58	1	4	0	64	0	4	0	0	64		
8:45	80	2	3	4	0	90	59	0	5	4	69	0	5	4	1	69		
9:00	61	1	3	4	1	70	58	0	5	6	87	0	5	6	0	87		
9:15	50	2	3	0	0	57	43	0	4	2	49	0	4	2	0	49		
9:30	40	0	4	3	0	47	35	3	0	0	39	0	0	0	1	39		
9:45	29	1	3	2	0	35	21	1	3	0	25	0	3	0	0	25		
10:00	25	0	3	2	0	32	20	0	2	3	25	0	2	3	0	25		
10:15	12	0	3	3	0	18	16	0	4	0	20	0	4	0	0	20		
10:30	14	2	2	1	0	19	13	0	2	3	19	0	2	3	0	19		
10:45	31	0	5	3	0	39	26	1	4	3	35	0	4	3	0	35		
11:00	28	0	5	2	0	34	17	0	4	3	25	0	4	3	0	25		
11:15	32	0	7	0	0	40	16	1	2	2	36	0	6	2	0	36		
11:30	21	0	1	1	0	23	42	0	5	2	40	0	5	2	0	40		
11:45	27	1	4	0	0	32	43	0	3	3	32	0	3	3	0	32		
12:00	24	0	5	2	0	33	40	0	3	2	33	0	3	2	0	33		
12:15	20	1	6	2	0	30	33	0	3	2	30	0	3	2	0	30		
12:30	26	0	2	0	0	28	23	0	4	2	28	0	4	2	0	28		
12:45	22	0	2	1	0	25	21	1	5	2	23	0	5	2	0	23		
13:00	24	0	2	2	0	27	27	0	4	1	27	0	4	1	0	27		
13:15	25	0	2	2	0	29	29	1	4	2	29	0	4	2	0	29		
13:30	37	0	4	4	0	45	33	2	6	1	45	0	6	1	0	43		
13:45	21	1	4	0	0	29	35	1	2	1	30	0	2	1	0	30		
14:00	23	1	2	5	0	32	39	0	9	0	32	0	9	0	0	39		
14:15	49	0	0	1	0	50	37	0	1	3	50	0	1	3	0	41		
14:30	37	0	2	1	0	40	31	0	1	1	40	0	1	1	0	33		
14:45	41	2	4	0	1	48	73	0	4	0	78	0	4	0	0	78		
15:00	38	1	3	1	0	43	52	0	2	0	55	0	2	0	0	55		
15:15	30	1	0	1	0	35	55	2	5	1	43	0	5	1	0	43		
15:30	21	0	4	1	0	34	56	1	7	0	51	0	7	0	1	51		
15:45	29	0	4	0	0	36	62	0	13	0	62	0	1	0	0	65		
16:00	34	0	5	0	0	39	69	0	13	1	63	0	13	1	0	76		
16:15	47	0	3	0	1	53	65	0	6	3	63	0	6	3	0	66		
16:30	48	0	6	1	0	56	82	1	9	4	66	0	9	4	0	97		
16:45	32	0	4	0	0	36	99	0	12	1	106	0	12	1	0	113		
17:00	51	0	5	0	0	56	88	1	14	2	106	0	14	2	0	110		
17:15	63	0	4	1	0	68	98	0	11	1	110	0	11	1	0	111		
17:30	45	0	7	0	0	52	102	0	8	1	112	0	8	1	0	112		
17:45	42	0	4	0	0	46	99	2	11	0	122	0	11	0	0	122		
18:00	32	0	4	0	0	36	106	0	13	2	122	0	13	2	0	122		
18:15	27	1	3	0	0	31	91	0	13	1	105	0	13	1	0	105		
18:30	31	0	5	1	0	38	66	2	4	1	74	0	4	1	0	74		
18:45	29	1	3	0	2	34	71	0	10	1	82	0	10	1	0	82		
25:75	2558	23	228	42	6	2394	2500	25	262	85	4	3	11	2690				

CAR 1
TAXI 1
LGV 1
HGV 2
PSV 2
M/C 0.4
P/C 0.2

Site No. 1
Location Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)
Date Tuesday 28 May 2019

Date	Tuesday 20 May 2017												Veh. Total		
	To D - Moyglare Road(N) to Moyglare Road(E)						To C - Moyglare Road(N) to Moyglare Road(S)								
	CAR	Taxi	LGV	HGV	PSV	P/C	CAR	Taxi	LGV	HGV	PSV	P/C			
7:00	13	1	4	0	0	0	18	16	5	2.3	0	0.4	23.7		
7:15	17	0	2	0	0	0	19	19	7	2.3	0	0	28.3		
7:30	20	0	0	0	0	0	20	17	0	9.2	0	0	33.2		
7:45	11	0	2	2.3	0	0	15.5	14	7	0	0	0.4	16.4		
8:00	13	0	0	0	0	0.2	15.5	15	0	6.9	0	0.2	24.1		
8:15	21	0	0	0	0	0	13	14	3	0	0	0	32		
8:30	10	0	2	0	0	0	21	28	2	0	2	0	34		
8:45	12	0	0	2.3	0	0	14.3	16	0	1.5	0	0	27.7		
9:00	7	0	0	0	0	0	7	12	0	4.6	0	0.2	17.8		
9:15	14	0	0	0	0	0	14	18	0	2.3	0	0	20.3		
9:30	8	0	2	0	0	0	10	13	1	4.6	0	0	18.4		
9:45	8	0	0	2.3	0	0	10.3	15	0	0	0	0	17		
10:00	3	0	1	0	0	0	4	5	0	6.9	0	0	11.9		
10:15	10	0	0	2.3	0	0	8.3	7	0	0	0	0	9		
10:30	2	1	1	0	0	0	4	10	3	4.6	0	0	13		
10:45	7	0	0	2.3	0	0	9.3	9	0	2.3	0	0	14.6		
11:00	2	0	1	0	0	0	3	5	1	6.9	0	0	8.3		
11:15	2	0	1	0	0	0	3	9	0	4.6	0	0	10.5		
11:30	2	0	1	0	0	0	3	8	0	4.6	0	0	10.5		
11:45	5	0	0	0	0	0	5	4	0	4.6	0	0	9.6		
12:00	3	0	1	2.3	0	0	6.3	7	0	0	0	0	8		
12:15	1	0	1	2.3	0	0.2	4.3	10	0	0	0	0.2	10.2		
12:30	6	0	0	0	0	0	6	6	0	2.3	0	0	9.3		
12:45	3	0	1	0	0	0	4	9	0	4.6	0	0	13.6		
13:00	3	0	1	0	0	0	4	1	1	0	0	0	5		
13:15	3	0	0	0	0	0	3	8	0	2.3	0	0	10.3		
13:30	6	0	1	2.3	0	0	9.3	3	0	6.9	0	0	9.9		
13:45	5	0	1	0	0	0	6	10	0	2.3	0	0	13.3		
14:00	0	0	0	2.3	0	0	2.3	12	0	0	0	0	14		
14:15	5	0	0	0	0	0	5	6	0	0	0	0	6		
14:30	7	0	0	0	0	0	7	8	0	4.6	0	0	14.8		
14:45	3	1	0	0	0	0	4	8	0	4.6	0	0.2	12.6		
15:00	4	0	3	0	0	0	7	11	0	6.9	0	0	18.9		
15:15	3	0	0	0	0	0	3	5	1	4.6	0	0	12.6		
15:30	2	0	1	2.3	0	0	5.3	9	0	2.3	0	0	12.3		
15:45	4	0	1	0	0	0	5	15	0	2.3	0	0	18.3		
16:00	3	0	0	0	0	0	3	10	0	0	0	0	14		
16:15	2	0	0	0	0	0	2	7	0	0	0	0	9		
16:30	7	0	0	2.3	0	0	9.3	8	0	2	0	0	11		
16:45	4	0	0	0	0	0	4	9	0	2.3	0	0	11.3		
17:00	5	0	0	0	0	0	5	7	0	0	0	0	10		
17:15	3	0	1	0	0	0	4	5	0	0	0	0	9		
17:30	5	0	1	0	0	0	5	10	0	0	0	0	13		
17:45	4	0	1	0	0	0	5	10	1	0	0	0	12		
18:00	5	0	0	0	0	0	5	5	0	4.6	0	0	5		
18:15	2	0	0	0	0	0	2	13	1	4.6	0	0	19.6		
18:30	6	0	1	0	0	0.2	7.2	8	1	2	2.3	0	13.3		
18:45	7	0	2	0	0	0	9	10	0	0	0	0.2	10.2		
Total	294	3	33	25.3	0	0	355.9	492	6	71	126.5	6	0.8	1.8	704.1

CAR 1
TAXI 1
LGV 1
HGV 2
PSV 2
M/C 0.4
P/C 0.2



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 1
Location Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)
Date Tuesday 28 May 2019

Time	A to B - Moyglare Road(N) to Moyglare Road(W)							Ven. Total	B to A - Moyglare Road(W) to Moyglare Road(N)							Ven. Total
	CAR	Taxi	LGV	HGV	PSV	M/C	P/C		CAR	Taxi	LGV	HGV	PSV	M/C	P/C	
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	1	0	0	0	0	0	0	1	0	0	0	2.3	0	0	0	2.3
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1
8:00	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
9:00	2	0	0	0	0	0	0	2	1	0	1	0	0	0	0	2
9:15	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0
9:30	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
10:45	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2
11:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	2	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0.2
12:00	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
12:15	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	1
12:30	1	0	1	0	0	0	0	2	0	0	1	0	0	0	0	1
12:45	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1
13:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	4
13:30	2	0	0	2.3	0	0	0	4.3	2	0	0	0	0	0	0	2
13:45	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
14:00	2	0	0	0	0	0	0	2	1	0	0	0	0	0	0	2.3
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	2	0	0	0	0	0	0	2	1	0	0	0	0	0	0	1
14:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	1	0	0	0	0	0	0	1	2	0	0	0	0	0	0	2
15:30	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	2	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2
16:15	1	0	1	0	0	0	0	2	0	0	0	2.3	0	0	0	2.3
16:30	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
16:45	2	0	0	0	0	0	0	2	1	0	0	2.3	0	0	0	2.3
17:00	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	1	0	1	0	0	0	0	2	1	0	0	0	0	0	0	0
17:45	0	0	0	2.3	0	0	0	2.3	0	0	0	0	0	0	0	0
18:00	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
18:15	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0
18:30	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
18:45	1	0	0	0	0	0	0	1	4	0	0	0	0	0	0	1
25:75	31	0	10	4.6	0	0	0	45.6	34	0	10	9.2	0	0	0	0.2
																53.4



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 1
Location Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)
Date Tuesday 28 May 2019

Time	B to D - Moyglare Road(W) to Moyglare Road(E)							Veh. Total	B to C - Moyglare Road(W) to Moyglare Road(S)							Veh. Total
	CAR	Taxi	LGV	HGV	PSV	M/C	P/C		CAR	Taxi	LGV	HGV	PSV	M/C	P/C	
7:00	44	0	7	4.6	0	0	0	55.6	3	0	2	0	0	0	0	
7:15	56	0	14	0	0	0	0	70	4	0	4	0	0	0	0	
7:30	63	0	12	2.3	0	0	0	77.3	5	0	1	4.6	0	0	0	
7:45	51	1	7	2.3	0	0	0	61.3	9	0	2	0	0	0	0	
8:00	54	0	7	2.3	0	0	0	63.3	7	0	1	0	0	0	0	
8:15	65	0	3	4.6	0	0	0	72.6	7	0	1	2.3	0	0	0	
8:30	27	0	2	0	0	0	0	29	12	0	0	0	0	0	0	
8:45	30	1	2	4.6	0	0.4	0	37	7	0	2	0	0	0	0	
9:00	30	1	2	4.6	0	0	0	37.6	6	0	0	2.3	0	0	0	
9:15	18	0	5	0	0	0	0	23	6	0	1	2.3	0	0	0.2	
9:30	16	0	0	2.3	0	0	0	18.3	2	0	1	2.3	0	0	0	
9:45	9	0	1	2.3	0	0	0	12.3	1	0	1	0	0	0	0	
10:00	7	0	4	0	0	0	0	11	2	0	0	0	0	0	0	
10:15	4	0	2	2.3	0	0	0	8.3	8	0	1	0	0	0	0	
10:30	5	0	0	0	0	0	0	5	4	0	0	0	0	0	0	
10:45	6	0	1	2.3	0	0	0	9.3	1	1	1	2.3	0	0	0	
11:00	9	0	3	0	0	0	0	12	4	0	0	2.3	0	0	0	
11:15	9	0	3	0	0	0	0.2	12.2	1	0	0	2.3	0	0	0.2	
11:30	4	0	0	2.3	0	0	0	6.3	2	0	0	0	0	0	0	
11:45	6	1	2	0	0	0	0	9	2	0	0	0	0	0	0	
12:00	9	0	1	0	0	0	0	10	0	0	0	0	0	0	0	
12:15	6	0	1	0	0	0	0	7	2	0	0	0	0	0	0	
12:30	9	0	2	0	0	0	0.2	11.2	1	0	2	2.3	0	0	0	
12:45	6	0	0	0	0	0	0	6	1	0	0	0	0	0	0	
13:00	10	0	2	4.6	0	0	0	16.6	3	0	0	0	0	0	0	
13:15	5	0	1	2.3	0	0	0	8.3	5	0	0	0	0	0	0	
13:30	10	0	2	0	0	0	0	12	1	0	0	0	0	0	0	
13:45	6	0	1	0	0	1.2	0	8.2	5	0	0	2.3	0	0	0	
14:00	6	0	0	4.6	0	0	0.2	10.8	7	0	1	0	0	0	0.2	
14:15	11	0	0	2.3	0	0	0	13.3	3	0	0	0	0	0	0	
14:30	7	0	0	2.3	0	0	0	9.3	3	0	1	0	0	0	0.2	
14:45	15	0	3	0	0	0	0	18	3	1	1	0	0	0	0	
15:00	6	0	2	0	0	0	0	8	3	0	0	0	0	0	0	
15:15	6	0	0	0	0	0	0	6	1	0	1	0	0	0	0	
15:30	11	0	0	0	0	0	0	11	6	0	0	0	0	0	0	
15:45	3	0	0	0	0	0	0.2	3.2	2	0	0	0	0	0	0	
16:00	9	0	4	0	0	0	0	13	3	0	0	2.3	0	0	0	
16:15	18	0	1	0	0	0	0.4	19.4	1	0	4	0	0	0	0	
16:30	12	0	2	0	0	0	0	14	4	0	1	0	0	0	0	
16:45	9	0	0	0	0	0	0	9	1	0	0	0	0	0	0	
17:00	14	0	5	0	0	0	0	19	1	0	0	0	0	0	0	
17:15	13	0	0	0	0	0	0	13	1	0	0	0	0	0	0	
17:30	10	0	4	0	0	0	0	14	2	0	1	0	0	0	0	
17:45	4	0	2	0	0	0	0	6	6	0	0	0	0	0	0	
18:00	12	0	0	0	0	0	0	12	5	0	0	0	0	0	0	
18:15	10	0	1	0	0	0	0	11	4	0	0	0	0	0	0	
18:30	8	0	2	2.3	0	0	0	12.3	3	0	0	0	0	0	0.2	
18:45	6	0	1	0	0	0	0	7	1	0	0	0	0	0	0	
25/7	764	3	114	55.2		1.6	1.2	939	171	2	30	27.6	0	0	1	231.6



Site No. 1
Location Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)
Date Tuesday 28 May 2019

Date		C to B - Maygore Road(S) to Maygore Road(W)										Veh.		C to A - Maygore Road(S) to Maygore Road(N)										Veh.								
Time	CAAP	Taxi	LGV	HGV	PSV	M/C	P/C	CAAP	Total																							
7:00	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30	2	0	0	1	2.3	0	0	0	5.3	1	0	2	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	6	0	2	13.8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15	1	0	0	0	0	0	0	0	0	3	4	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	5	0	0	0	0	0	0.2	0	5.2	9	0	0	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	7	0	0	0	0	0	0	0	8	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00	5	0	1	2.3	0	0	0	0	8.3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15	6	0	0	2.3	0	0	0	0	8.3	7	1	0	4.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30	4	0	0	2.3	0	0	0	0	7.3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45	0	0	1	2.3	0	0	0	0	3.3	1	0	0	4.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	1	0	1	0	0	0	0	0	2	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	2	0	2	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	2	0	0	0	0	0	0	0	2	7	1	0	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	1	0	0	4.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	1	0	0	2.3	0	0	0	0	7.6	3	0	1	4.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	2	0	3	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	3	0	0	0	0	0	0	0	5	7	0	1	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	2	0	0	0	0	0	0	0	0	6	0	0	4.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	2	0	1	0	0	0	0	0	2	14	0	1	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	1	2.3	0	0	0	0	9	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	6	0	0	0	0	0	0	0	3.3	13	0	1	4.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	1	0	0	0	0	0	0	0	6	10	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	2	0	0	0	0	0	0	0	0	11	0	3	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	2	0	0	2.3	0	0	0	0	3.3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	3	0	1	0	0	0	0	0	0	2	12	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	2	0	0	0	0	0	0	0	4	8	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	4	0	2	0	0	0	0	0	2	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	3	0	0	0	0	0	0	0	6	13	0	0	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	15	0	0	0	0	0	0	0	3	9	0	1	9.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	7	0	2	2.3	0	0	0	0	10.3	13	0	5	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	9	0	2	2.3	0	0	0	0	10.3	16	0	1	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	16	0	0	0	0	0.4	0	0	10.4	28	0	6	4.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	2	0	3	0	0	0	0	0	5.6	17	0	2	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	5	0	1	0	0	0	0	0	6	19	0	0	4.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	5	0	4	0	0	0	0	0	9	18	0	4	4.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	6	0	0	0	0	0	0	0	8.2	23	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	10	0	0	0	0	0	0	0	10	25	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	7	0	0	0	0	0	0.2	0	7.2	29	0	2	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	1	0	1	0	0	0	0	0	2.2	15	1	1	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	8	0	0	0	0	0	0.2	0	8.2	13	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30	4	0	1	0	0	0	0	0	5	13	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45	1	0	1	0	0	0	0.2	0	2.2	12	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25:75	157	1	39	29.9	0	0.4	1.8	229.1	489	4	76	119.5	2	0.8	1.4																	



Site No. 1
Location Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)
Date Tuesday 28 May 2019

Time	CAAP	Total	LGV	HGV	PSV	M/C	P/C	CAAP	Total	LGV	HGV	PSV	M/C	P/C	Veh. Total	Veh. Total
7:00	12	0	0	0	0	0	0	9	0	0	0	0	0	0	16	16
7:15	18	0	0	2.3	0	0	0	7	0	0	2.3	0	0	0	21.3	21.3
7:30	29	0	0	2.3	0	0	0	31.3	17	0	0	0	0	0	31.3	31.3
7:45	19	0	0	0	0	0	0	19	28	0	4.6	0	0	0	34.6	34.6
8:00	23	1	2	0	0	0	0.2	26.2	17	0	2	4.6	0	0	36	36
8:15	35	0	0	0	0	0	0	35	36	0	2.3	0	0	0	47	47
8:30	57	0	4	2.3	2	0	0	65.3	42	1	2	0	0	0	70.6	70.6
8:45	38	2	1	2.3	0	0	0	43.3	48	0	4.6	2	0	0	56.6	56.6
9:00	24	0	0	4.6	2	0	0	31.6	49	0	4	6.9	0	0	59.9	59.9
9:15	18	2	0	4.6	0	0	0	20	35	0	0	0	0	0.2	59.9	59.9
9:30	16	0	2	4.6	0	0	0	22.6	26	2	0	0	0	0	28.2	28.2
9:45	12	0	0	4.6	0	0	0	15	15	0	4.6	0	0	0	19.6	19.6
10:00	15	0	0	4.6	0	0	0	19.6	14	0	4.6	0	0	0	18.6	18.6
10:15	2	0	0	2.3	0	0	0	5.3	9	0	0	0	0	0	12	12
10:30	10	0	0	2.3	0	0	0	11.3	9	0	2.3	0	0	0	12.3	12.3
10:45	18	0	4	2.3	0	0	0.2	24.3	14	1	2	2.3	0	0	19.3	19.3
11:00	17	0	0	4.6	0	0	0	22.6	11	0	3	2.3	0	0	16.3	16.3
11:15	21	0	0	0	0	0	0	24	9	0	0	0	0	0	10	10
11:30	15	0	0	0	0	0	0	18	28	0	2.3	0	0	0	33.3	33.3
11:45	16	0	2	0	0	0	0	32	0	2	2.3	0	0	0	36.3	36.3
12:00	14	0	3	2.3	0	0	0	19.3	23	0	1	2.3	0	0	26.3	26.3
12:15	13	1	4	2.3	0	0	0	20.3	23	0	2	2.3	0	0	15.3	15.3
12:30	11	0	0	0	0	0	0	11	11	0	2	2.3	0	0	11.3	11.3
12:45	13	0	0	2.3	0	0	0	16.3	7	0	2.3	0	0	0	18.3	18.3
13:00	13	0	0	0	0	0	0	11	13	0	3	2.3	0	0	24.3	24.3
13:15	17	0	1	2.3	0	0	0	20.3	18	0	4	2.3	0	0	24	24
13:30	21	0	1	6.9	0	0	0	28.9	20	1	0	0	0	0	25	25
13:45	10	1	2	4.6	0	0	0	13	24	0	0	0	0	0	25	25
14:00	17	1	2	0	0	0	0	24.5	18	0	5	0	0	0	25	25
14:15	33	0	2	0	0	0	0	33	20	0	0	0	0	0	22.3	22.3
14:30	23	0	2	0	0	0	0	25	17	0	0	0	0	0	58.9	58.9
14:45	23	1	1	0	2	0	0	27	52	0	0	6.9	0	0	26.3	26.3
15:00	28	0	2	2.3	0	0	0	32.3	23	0	1	2.3	0	0	25	25
15:15	21	1	3	2.3	0	0	0	27.3	24	1	0	0	0	0	37	37
15:30	8	0	3	0	0	0	0	11	32	4	1	0	0	0	37	37
15:45	22	0	3	0	0	0	0	25	29	0	2	0	0	0	33	33
16:00	22	0	1	0	0	0	0	23	35	0	3	2.3	0	0	40.3	40.3
16:15	27	0	2	0	2	0	0	31	21	0	2	2.3	0	0	25.3	25.3
16:30	29	0	4	0	0	0	0.2	33.2	28	0	6	2.3	0	0	36.3	36.3
16:45	19	0	4	0	0	0	0	23	42	0	4	2	0	0	48	48
17:00	32	0	4	0	0	0	0	32	36	0	4	2.3	0	0.2	42.3	42.3
17:15	47	0	3	2.3	0	0	0	52.3	41	0	3	0	0	0	44	44
17:30	30	0	3	0	0	0	0	33	45	0	3	2.3	0	0	50.3	50.3
17:45	34	0	1	0	0	0	0	35	50	0	2	2.3	0	0	55	55
18:00	15	3	1	0	0	0	0	19	45	0	0	0	0	0	49.3	49.3
18:15	15	1	2	0	0	0	0	18	41	0	4	0	0	0	45	45
18:30	17	0	2	0	0	0	0	19	27	2	1	2.3	0	0	32.3	32.3

Site No.

Location

Date

Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)

Tuesday, 28 May 2019

Time	CAR	Tot	LGV	HGV	PSV	M/C	P/C	D to B - Moyglare Road(E) to Moyglare Road(W)			Veh. Total			D to A - Moyglare Road(E) to Moyglare Road(N)			Veh. Total
7:00	1	0	3	0	0	0	0	1	0	0	4	1	0	0	0	0	1
7:15	2	0	0	2,3	0	0	0	4,3	1	0	4,3	1	0	0	0	0	1
7:30	8	0	4	2,3	0	0	0	14,3	1	0	0	0	0	0	0	0	1
7:45	4	0	1	0	0	0	0	5	0	0	5	0	0	1	0	0	0,2
8:00	7	0	2	0	0	0	0	9	3	0	0	0	0	0	0	0	4
8:15	8	0	2	4,6	0	0	0	14,6	0	0	14,6	0	0	0	0	0	0
8:30	13	0	1	0	0	0	0	14	3	0	14	3	0	1	0	0	4
8:45	5	0	2	4,6	0	0	0	11,6	6	0	11,6	6	0	1	0	0	7
9:00	6	0	1	0	0	0	0	7	3	0	7	3	0	0	6,9	0	9,9
9:15	6	0	1	2,3	0	0	0	9,3	2	0	9,3	2	0	2	2,3	0	6,3
9:30	9	1	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0
9:45	4	0	1	0	0	0	0	5	2	0	5	2	0	0	2,3	0	4,3
10:00	3	0	1	2,3	0	0	0	6,3	3	0	6,3	3	0	1	0	0	4
10:15	6	0	1	0	0	0	0	7	1	0	7	1	0	0	0	0	1
10:30	1	0	0	4,6	0	0	0	5,8	3	0	5,8	3	0	1	0	0	4
10:45	7	0	2	2,3	0	0	0	11,5	5	0	11,5	5	0	0	2,3	0	7,3
11:00	4	0	3	2,3	0	0	0	9,3	2	0	0	0	0	0	0	0	2
11:15	2	0	1	2,3	0	0	0	5,3	5	1	0	0	0	0	0	0	6
11:30	13	0	1	0	0	0	0	14	1	0	14	1	0	1	2,3	0	4,3
11:45	5	0	1	2,3	0	0	0	8,3	6	0	8,3	6	0	0	2,3	0	8,3
12:00	11	0	1	0	0	0	0	12	5	0	12	5	0	1	2,3	0	3
12:15	7	0	2	2,3	0	0	0	11,3	3	0	0	0	0	0	0	0	0
12:30	7	0	0	2,3	0	0	0	9,7	5	0	9,7	5	0	2	0	0	6
12:45	9	0	3	2,3	0	0	0	14,5	5	1	0	0	0	0	0	0	7
13:00	7	0	1	0	0	0	0	8	7	0	0	0	0	0	0	0	5
13:15	7	0	0	2,3	0	0	0	9,3	4	1	0	0	0	0	0	0	10,3
13:30	6	1	2	0	0	0	0,4	9,4	7	0	9,4	7	0	1	2,3	0	6,3
13:45	8	0	1	0	0	0	0	9	3	0	0	0	0	1	2,3	0	8
14:00	13	0	4	0	0	0	0	17	8	0	0	17	8	0	0	0	5
14:15	12	0	1	4,6	0	0	0	17,6	5	0	0	0	0	0	0	0	11
14:30	4	0	0	0	0	0	0	4	10	0	1	0	0	1	0	0	10,3
14:45	14	0	0	0	0	0	0	14	7	0	14	7	0	1	2,3	0	10
15:00	19	0	0	2,3	0	0	0	21,3	10	0	0	0	0	0	0	0	10,3
15:15	24	1	4	0	0	0	0	29	7	0	1	2,3	0	0	0	0	7,3
15:30	25	1	0	0	0	0	0,2	24,2	5	0	0	2,3	0	0	0	0	8
15:45	24	1	2	0	0	0	0	27	3	0	3	0	3	0	0	0	6
16:00	25	0	8	0	0	0	0	33	9	0	0	0	0	2	0	0	11
16:15	35	0	4	2,3	0	0,4	0	41,7	10	0	0	2,3	0	0	0	0	12,3
16:30	43	1	2	4,6	0	0,4	0	51	11	0	1	2,3	0	0	0	0	14,3
16:45	50	0	7	2,3	0	0	0	59,3	7	0	1	0	0	0	0	0	8
17:00	37	0	7	0	0	0	0	44	15	1	3	2,3	0	0	0	0	21,3
17:15	40	0	7	0	0	0	0	47	17	0	1	2,3	0	0	0	0	20,3
17:30	43	0	5	0	0	0	0	48	14	0	0	0	0	0	0	0	14
17:45	36	1	6	0	0	0	0	43	13	0	1	0	0	0	0	0	17
18:00	48	0	7	2,3	0	0	0,2	57,5	13	0	4	0	0	0	0	0	8
18:15	44	0	7	2,3	0	0	0	53,3	6	0	2	0	0	0	0	0	13
18:30	26	0	3	0	0	0	0	29,2	13	0	0	0	0	0	0	0	0
18:45	25	0	6	0	0	0	0	31	6	0	2	2,3	0	0	0	0	36,9
25:75	763	7	118	62,1	0	1,2	1,6	952	27,6	4	37	43,7	0	0	0	0	0,2

Site No. 1

Mayglare Road(N) / Mayglare Road(W) / Mayglare Road(S) / Mayglare Road(E)

Location Tuesday 28 May 2019

Date

Junction Turning Count

Time	To Am A - Mayglare Road(N)				Ven	From Am A - Mayglare Road(N)				Total	Veh.					
	CAR	Tot	LGV	HGV		PSV	M/C	P/C	CAR		Tot	LGV	HGV	PSV	M/C	P/C
7:00	5	0	1	0	0	6	29	1	9	2,3	0	0,4	0	41,7		
7:15	8	0	1	4,6	0	13,6	37	0	9	2,3	0	0	0	48,3		
7:30	3	0	2	2,3	0	7,3	37	0	7	9,2	0	0	0	55,2		
7:45	7	0	3	13,8	2	26	26	0	4	2,3	0	0,4	0,2	32,9		
8:00	6	0	3	2,3	0	11,3	28	0	3	6,9	0	0	0,2	36,1		
8:15	4	0	2	0	0	6	49	0	2	0	2	0	0	53		
8:30	12	0	1	2,3	0	15,3	33	0	5	0	0	0	0	38		
8:45	13	0	3	2,3	0	18,3	28	0	0	13,8	0	0	0	42		
9:00	10	0	1	11,5	0	22,5	21	0	1	4,6	0	0	0,2	26,8		
9:15	11	1	2	6,9	0	20,9	32	0	1	2,3	0	0	0	35,3		
9:30	3	0	2	0	0	5	22	1	2	4,6	0	0	0	29,6		
9:45	3	0	0	6,9	0	9,9	23	0	2	2,3	0	0	0	27,3		
10:00	12	0	1	2,3	0	15,5	8	0	1	6,9	0	0	0	15,9		
10:15	11	0	3	2,3	0	16,3	13	0	2	2,3	0	0	0	17,3		
10:30	4	0	3	0	0	7	12	1	4	0	0	0	0	17		
10:45	12	0	1	6,9	0	19,9	16	0	1	6,9	0	0	0	23,9		
11:00	10	1	1	2,3	0	14,3	7	0	2	2,3	0	0	0	11,3		
11:15	8	1	1	4,6	0	14,6	11	0	1	6,9	0	0	0	19,5		
11:30	9	0	1	13,8	0	24	10	0	2	4,6	0	0	0	16,6		
11:45	14	0	0	4,6	0	18,6	11	0	1	4,6	0	0	0	16,6		
12:00	17	0	1	2,3	0	20,3	12	0	2	2,3	0	0	0	14,3		
12:15	11	0	1	0	0	12	11	0	2	2,3	0	0	0,4	15,7		
12:30	19	0	4	2,3	0	25,3	13	0	2	2,3	0	0	0	18,6		
12:45	11	1	1	4,6	0	17,6	12	0	2	4,6	0	0	0	17,3		
13:00	18	0	3	0	0	21	4	1	2	0	2,3	0	0	7		
13:15	19	1	1	4,6	0	25,6	11	0	0	2,3	0	0	0	13,3		
13:30	17	0	3	2,3	0	22,5	11	0	1	11,5	0	0	0	23,5		
13:45	14	1	4	6,9	0	25,9	16	0	2	2,3	0	0	0	20,3		
14:00	14	0	0	0	0	14	14	0	2	2,3	0	0	0	18,3		
14:15	17	0	1	0	0	18	11	0	0	0	0	0	0	11		
14:30	19	0	3	0	0	22	17	0	2	4,6	0	0	0,2	23,8		
14:45	15	0	5	2,3	0	22,3	11	1	0	4,6	0	0	0	16,6		
15:00	23	0	0	2,3	0	25,5	15	0	4	6,9	0	0	0	25,9		
15:15	18	0	2	11,5	0	31,7	9	1	2	4,6	0	0	0	16,6		
15:30	14	0	1	2,3	0	17,3	12	0	2	4,6	0	0	0	18,6		
15:45	16	0	8	2,3	0	26,5	19	0	2	2,3	0	0	0	23,3		
16:00	27	0	3	2,3	0	32,5	15	0	4	0	0	0	0	19		
16:15	36	0	6	9,2	0	53,2	10	0	1	0	2	0	0	13		
16:30	28	0	3	6,9	0	37,9	16	0	1	2,3	2	0	0	21,3		
16:45	27	0	5	4,6	0	36,6	15	0	0	2,3	0	0	0	17,3		
17:00	34	1	8	6,9	0	50,1	13	0	3	0	0	0	0	16		
17:15	40	0	7	2,3	0	49,3	8	0	6	0	0	0	0	14		
17:30	40	0	4	0	0,4	44,4	16	0	4	0	0	0	0	20		
17:45	42	0	3	2,3	0	47,3	14	1	2	2,3	0	0	0	19,3		
18:00	26	1	5	2,3	0	34,3	11	0	0	0	0	0	0	11		
18:15	19	0	5	0	0,4	24,4	15	1	2	4,6	0	0	0	22,6		
18:30	27	0	1	0	0	28	15	1	3	2,3	0	0	0,2	21,5		
18:45	22	0	3	2,3	0	27,3	18	0	2	0	0	0	0,2	20,2		
25:75	799	8	123	17,2,3	2	0,8	1,8	110,7	817	9	114	15,4	6	0,8	2,4	1035,6

Site No.

Location

Date

Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)

Tuesday 28 May 2019

Time	To Am C - Moyglare Road(S)							From Am C - Moyglare Road(S)							Veh.	Total
	CAR	Tow	LGV	HGV	PSV	M/C	P/C	CAR	Tow	LGV	HGV	PSV	M/C	P/C		
7:00	28	0	13	2.3	0	0	0.4	16	0	5	0	0	0	0	21	
7:10	30	0	15	4.6	0	0	0	47.8	22	0	4.6	0	0	0	33.6	
7:30	39	0	10	13.8	0	0	0	62.8	36	0	3	6.9	0	0	41.9	
7:45	52	0	5	4.6	0	0.4	0	62	25	0	2	13.8	2	0	42.8	
7:55	52	0	5	4.6	0	0	0.2	55.7	28	1	4	2.3	0	0.2	35.5	
	52	0	5	4.6	0	0	0.2	55.7	28	1	4	2.3	0	0.2	35.5	
8:00	38	0	7	11.5	2	0	0	84.6	40	0	3	0	0	0	43	
8:15	71	0	4	4.6	2	0	0	83	71	0	4	4.6	2	0	81.8	
8:30	76	1	4	0	2	0	0.2	93.3	51	2	3	4.6	0	0.2	60.6	
8:45	71	0	4	16.1	0	0	0.2	84	35	0	2	11.5	2	0	50.5	
9:00	67	0	5	13.8	0	0	0.2	65.8	31	3	0	6.9	0	0	40.9	
9:15	59	0	2	4.6	0	0	0.2	52.1	23	0	5	6.9	0	0	34.9	
9:30	41	3	1	6.9	0	0	0	38.6	13	1	3	6.9	0	0	23.9	
9:45	31	0	3	4.6	0	0	0	32.5	25	0	1	6.9	0	0.2	33.1	
10:00	21	0	0	11.5	0	0	0	30	11	0	4	4.6	0	0	19.6	
10:15	24	0	6	0	0	0	0	29.3	9	1	4	2.3	0	0	16.3	
10:30	23	0	4	9.2	0	0	0	39.2	27	0	6	6.9	0	0	39.9	
10:45	24	2	4	9.2	0	0	0	30.7	26	1	2	6.9	0	0.2	36.1	
11:00	20	0	4	6.9	0	0	0.8	30	25	1	5	9.2	0	0	40.2	
11:15	19	0	1	9.2	0	0	0	48.9	24	0	0	13.8	0	0	37.8	
11:30	36	0	4	6.9	0	0	0	7.9	24	0	2	2.3	0	0	28.3	
11:45	36	0	3	6.9	0	0	0	55.3	26	0	3	2.3	0	0	31.3	
12:00	31	0	2	2.3	0	0	0.2	38.5	22	1	6	2.3	0	0	33.3	
12:15	35	0	1	2.3	0	0	0	29.9	28	0	1	2.3	0	0	31.3	
12:30	18	0	5	6.9	0	0	0	25.9	21	0	6	6.9	0	0	28.9	
12:45	17	0	2	6.9	0	0	0	21	0	2	0	0	0	0	24	
13:00	17	1	4	2.3	0	0	0	24.3	22	0	3	9.2	0	0	42.2	
13:15	31	0	4	4.6	0	0	0	37.6	30	0	3	9.2	0	0.2	46.1	
13:30	24	1	3	6.9	0	0	0	34.9	37	0	2	6.9	0	0	31.3	
13:45	39	1	1	4.6	0	0	0	45.6	22	2	5	2.3	0	0	31.3	
14:00	37	0	8	0	0	0	0.2	45.2	24	1	3	6.9	0	0	34.9	
14:15	29	0	0	2.3	0	0	0	31	47	0	1	0	0	0	48	
14:30	28	0	3	6.9	0	0	0.4	36.3	34	0	5	0	0	0	39	
14:45	63	1	1	11.5	0	0	0	74.5	32	1	5	0	2	0	40	
15:00	37	0	2	9.2	0	0	0	48.2	45	0	4	4.6	0	0.2	53.8	
15:15	30	2	3	4.6	0	0	0	59.6	47	0	4	4.6	0	0	29.3	
15:30	47	4	2	2.3	0	0	0	52.3	48	0	9	2.3	0	0.2	55.8	
15:45	46	0	3	2.3	2	0	0	60.3	43	0	9	4.6	2	0.4	80	
16:00	48	0	7	4.6	0	0	0	53.3	33	1	4	1.5	0	0	60.1	
16:15	29	0	6	2.3	2	0	0.2	53.5	55	0	8	4.6	0	0	56.4	
16:30	40	0	8	2.3	2	0	0	59.6	47	0	4	4.6	0	0.2	67.8	
16:45	52	0	4	2.3	2	0	0	39.3	64	0	9	4.6	0	0.2	89.5	
17:00	44	0	7	2.3	0	0	0	64.3	65	0	7	0	0.4	0	72.4	
17:15	47	0	7	0	0	0	0	73	70	0	3	2.3	0	0.2	75.5	
17:30	57	0	7	2.3	0	0	0	59.3	31	4	3	2.3	0	0	40.5	
17:45	66	2	5	0	0	0	0	68.6	36	1	4	0	0.4	0.2	41.6	
18:00	55	0	2	2.3	0	0	0	48.8	34	0	2	0	0	0	38	
18:15	58	1	5	4.6	0	0	0.2	48.8	34	0	2	0	0	0.4	41.6	
18:30	36	3	3	4.6	0	0	0	48.8	34	0	2	0	0	0	36.4	
18:45	51	0	2	0	0	0	0	53.2	29	1	4	0	0	0.4	36.4	
18:55	19.24	22	208	243.8	4	0.8	3.2	2415.8	1646	22	196	211.6	1	1.2	4	2074.8



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 1
Location Moyglare Road(N) / Moyglare Road(W) / Moyglare Road(S) / Moyglare Road(E)
Date Tuesday 28 May 2019

Time	To Am.D. - Mayglore Road(E)			To Am.D. - Mayglore Road(W)			Veh. Total	From Am.D. - Mayglore Road(E)						Vent.		
	CAR	Taxi	LGV	HGV	PSV	M/C		P/C	CAR	Taxi	LGV	HGV	PSV		M/C	P/C
7:00	69	1	15	4.6	0	0	89.6	11	0	9	0	0	0	0	20	
7:15	91	0	17	2.3	0	0	110.3	10	0	4	4.6	0	0	0	18.6	
7:30	112	0	12	4.6	0	0	128.6	26	0	6	2.3	0	0	0	34.3	
7:45	81	1	9	4.6	0	0	95.8	32	0	4	4.6	0	0	0.2	40.8	
8:00	90	1	9	2.3	0	0	102.5	27	0	5	4.6	0	0	0	36.6	
8:15	121	0	4	4.6	0	0	129.6	44	0	6	6.9	0	0	0	56.9	
8:30	94	0	8	2.3	2	0	106.3	58	1	4	0	2	0	0	65	
8:45	80	2	3	9.2	0	0.4	94.6	59	0	5	9.2	2	0	0	75.2	
9:00	61	1	3	9.2	2	0	74.2	58	0	5	13.8	0	0	0	76.8	
9:15	50	2	5	0	0	0	57	43	0	4	4.6	0	0	0	51.6	
9:30	40	0	4	6.9	0	0	50.9	35	3	0	0	0	0	0.2	38.2	
9:45	29	1	3	4.6	0	0	37.6	21	0	1	6.9	0	0	0	28.9	
10:00	25	0	5	4.6	0	0	34.6	20	0	2	6.9	0	0	0	28.9	
10:15	12	0	3	6.9	0	0	21.9	16	0	4	0	0	0	0	20	
10:30	14	2	2	2.3	0	0	20.3	13	0	2	6.9	0	0	0.2	22.1	
10:45	31	0	5	6.9	0	0	42.9	26	1	4	6.9	0	0	0.2	38.1	
11:00	28	0	5	4.6	0	0	37.8	17	0	6	4.6	0	0	0	27.6	
11:15	32	0	7	0	0	0.2	39.2	16	1	2	2.3	0	0	0	21.3	
11:30	21	0	1	2.3	0	0	24.3	42	0	5	4.6	0	0	0	51.6	
11:45	27	1	4	0	0	0	32	43	0	3	6.9	0	0	0	52.9	
12:00	26	0	5	4.6	0	0	35.6	40	0	3	4.6	0	0	0	47.6	
12:15	20	1	6	4.6	0	0	31.8	33	0	3	4.6	0	0	0	40.6	
12:30	26	0	2	0	0	0.2	28.2	23	0	4	4.6	0	0	0.4	32	
12:45	22	0	2	2.3	0	0	24.3	21	1	5	4.6	0	0	0.2	31.8	
13:00	24	0	3	4.6	0	0	31.6	27	0	4	2.3	0	0	0	33.3	
13:15	25	0	2	4.6	0	0	31.6	29	1	4	4.6	0	0	0	38.6	
13:30	37	0	4	9.2	0	0	50.2	33	2	6	2.3	0	0.4	0	43.7	
13:45	21	1	4	0	0	1.2	27.2	35	1	2	2.3	0	0	0	40.3	
14:00	23	1	2	11.5	0	0.2	37.7	39	0	9	0	0	0	0	48	
14:15	49	0	0	2.3	0	0	51.3	37	0	1	6.9	0	0	0	44.9	
14:30	37	0	2	2.3	0	0	41.3	31	0	1	2.3	0	0	0	34.3	
14:45	41	2	4	0	2	0	49	73	0	1	9.2	0	0	0	83.2	
15:00	38	0	7	2.3	0	0	47.3	52	0	1	4.6	0	0	0	57.6	
15:15	30	1	3	2.3	0	0	36.3	55	2	5	2.3	0	0	0	64.3	
15:30	21	0	4	2.3	0	0	27.3	62	5	1	2.3	0	0	0.2	70.5	
15:45	29	0	4	0	0	0.2	33.2	56	1	7	0	2	0	0	66	
16:00	34	0	5	0	0	0	39	69	0	13	2.3	0	0	0	84.3	
16:15	47	0	3	0	2	0	52.4	66	0	6	6.9	0	0.4	0	79.3	
16:30	48	0	6	2.3	0	0	56.5	82	1	9	9.2	0	0.4	0	101.6	
16:45	32	0	4	0	0	0	36	99	0	12	2.3	2	0	0	115.3	
17:00	51	0	5	0	0	0	56	88	1	14	4.6	0	0	0.2	107.8	
17:15	63	0	4	2.3	0	0	69.3	98	0	11	2.3	0	0	0	111.3	
17:30	45	0	7	0	0	0	52	102	0	8	2.3	0	0	0	112.3	
17:45	42	0	4	0	0	0	46	99	2	11	0	0	0	0	112	
18:00	32	3	1	0	0	0	36	106	0	13	4.6	0	0	0.2	123.6	
18:15	27	1	3	0	0	0	31	91	0	13	2.3	0	0	0	106.3	
18:30	31	0	5	2.3	0	0.2	38.5	66	2	4	2.3	0	0	0.2	74.5	
18:45	29	1	3	0	4	0	37.2	71	0	10	2.3	0	0	0	83.3	
TOTAL	2058	23	228	142.6	12	1.6	2.6	2462	2300	25	262	193.5	8	1.2	2.2	2793.7



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 2
Location Moyglare Road(N) / Moyglare Road(S) / Maravilla
Date Tuesday 28 May 2019

Time	A to C - Moygare Road(s) to Monawla							Veh. Total	A to B - Moygare Road(N) to Moygare Road(S)							Total	Veh.
	CAR	Taxi	LGV	HGV	PSV	M/C	P/C		CAR	Taxi	LGV	HGV	PSV	M/C	P/C		
7:00	2	0	1	0	0	0	0	3	22	0	8	1	0	0	1	0	32
7:15	4	0	2	0	0	0	0	6	28	0	10	2	0	0	0	0	40
7:30	1	0	2	0	0	0	0	3	30	0	6	6	0	0	0	0	42
7:45	5	0	2	1	0	0	0	8	54	0	5	1	0	1	0	0	61
8:00	2	0	0	0	0	0	0	2	34	0	3	5	0	0	1	0	43
8:15	4	0	1	0	0	0	0	5	64	0	3	1	1	0	0	0	69
8:30	4	1	0	0	0	0	0	5	60	0	7	1	1	0	0	0	69
8:45	4	0	1	1	0	0	0	6	61	0	4	7	1	0	0	1	74
9:00	8	0	1	0	0	0	0	9	62	0	4	6	0	0	1	0	73
9:15	5	0	3	1	0	0	0	9	54	0	0	1	0	0	1	0	56
9:30	4	0	1	1	0	0	0	6	36	3	0	2	0	0	1	0	42
9:45	1	0	0	0	0	0	0	1	31	0	2	3	0	0	0	0	36
10:00	4	0	0	0	0	0	0	4	19	0	6	4	0	0	0	0	29
10:15	2	0	1	0	0	0	0	3	19	0	3	0	0	0	0	0	22
10:30	1	0	0	0	0	0	0	1	25	0	4	2	0	0	0	0	31
10:45	1	0	1	1	0	0	0	3	27	1	3	3	0	0	0	0	34
11:00	1	0	1	1	0	0	0	3	14	0	2	2	0	0	0	0	18
11:15	2	0	1	1	0	0	0	4	22	0	0	3	0	0	4	0	29
11:30	2	0	0	0	0	0	0	2	32	0	4	3	0	0	0	0	39
11:45	8	0	0	0	0	0	0	8	1145	8	4	3	0	0	0	0	41
12:00	6	0	1	0	0	0	0	7	24	0	1	1	0	0	0	0	26
12:15	4	0	1	0	0	0	0	5	25	0	3	1	0	0	0	1	30
12:30	5	0	0	1	0	0	0	6	16	0	4	1	0	0	0	0	21
12:45	2	0	0	0	0	0	0	2	14	0	3	3	0	0	0	0	20
13:00	1	0	0	0	0	0	0	1	15	1	5	2	0	0	0	0	23
13:15	4	0	1	0	0	0	0	5	24	0	4	2	0	0	0	0	30
13:30	1	1	1	0	0	0	0	3	27	0	2	4	0	0	0	0	33
13:45	8	0	0	1	0	0	0	9	29	1	3	1	0	0	0	0	34
14:00	3	0	1	0	0	0	0	4	24	0	7	0	0	0	1	0	32
14:15	7	0	1	0	0	0	0	8	23	0	0	2	0	0	1	0	26
14:30	3	0	1	0	0	0	0	4	30	0	1	2	0	0	0	2	35
14:45	17	0	0	2	0	0	0	19	45	0	2	5	0	0	0	0	52
15:00	8	0	1	0	0	0	0	9	28	0	1	3	0	0	0	0	32
15:15	4	1	0	0	0	0	0	5	26	2	4	3	0	0	0	0	35
15:30	11	2	1	0	0	0	0	14	35	1	0	0	0	0	0	0	36
15:45	10	1	1	1	0	0	0	12	38	0	4	2	1	0	0	0	45
16:00	10	0	1	0	0	0	0	11	31	0	8	2	0	0	0	0	41
16:15	14	0	2	0	0	0	0	16	24	0	8	1	1	0	0	0	34
16:30	7	0	2	1	0	0	0	10	31	0	5	0	1	0	0	0	37
16:45	17	0	2	0	0	0	0	19	31	0	2	1	1	0	0	0	35
17:00	16	0	2	0	0	0	1	19	32	0	4	1	0	0	0	0	37
17:15	22	0	0	0	0	0	0	22	26	0	6	0	0	0	0	0	32
17:30	19	0	1	0	0	0	0	20	36	0	5	2	0	0	0	0	43
17:45	20	0	0	0	0	0	0	20	48	2	6	0	0	0	0	0	56
18:00	20	0	1	0	0	0	0	21	33	0	3	1	0	0	0	0	37
18:15	27	0	4	0	0	0	0	31	32	1	1	2	0	0	0	0	36
18:30	11	0	2	0	0	0	0	13	22	3	1	2	0	0	1	0	29
18:45	6	0	0	0	0	0	0	6	38	0	2	0	0	0	0	1	41
TOTAL	348	6	45	12	0	0	1	412	5335	15	173	100	7	2	16	16	1848

Site No.	2
Location	Moyle Road(N) / Moyglare Road(S) / Marvalla
Date	Tuesday 28 May 2019

Time	C to B - Maricopa to Mayaguez Road(S)					C to A - Maricopa to Mayaguez Road(N)					Veh Total
	CAS	Tow	GVW	HGV	PIC	CAS	Tow	GVW	HGV	PIC	
7:00	27	1	3	0	0	30	5	0	0	0	0
7:15	27	1	3	0	0	31	12	0	0	0	0
7:30	18			0	0	30	17	0	0	0	18
7:45	21	0	3	2	0	27	9	0	0	9	9
8:00	28	0	0	2	0	31	12	0	0	0	13
8:15	31	1	0	0	1	33	25	0	0	0	25
8:30	42	0	1	1	0	44	34	0	0	0	35
8:45	24	0	1	1	0	26	21	1	0	0	23
9:00	17	0	3	0	0	20	8	1	0	0	8
9:15	14	1	1	0	0	16	5	1	0	0	7
9:30	6	0	2	2	0	10	2	0	1	0	5
9:45	11	0	2	2	0	10	2	0	1	0	5
10:00	9	1	1	0	0	15	5	0	1	0	7
10:15	10	0	0	0	0	14	5	0	0	0	5
10:30	8	0	5	0	1	12	1	0	1	0	2
10:45	5	0	0	0	0	14	3	0	2	0	6
11:00	20	0	0	1	0	6	2	0	1	0	4
11:15	5	0	2	1	0	21	3	0	1	0	4
11:30	10	0	2	0	0	8	2	0	1	0	6
11:45	9	0	0	0	0	12	3	0	2	0	5
12:00	10	0	4	0	0	9	8	0	1	0	9
12:15	11	0	0	0	0	14	2	0	0	0	2
12:30	16	0	6	1	0	12	5	0	2	0	7
12:45	17	1	3	0	0	23	4	0	1	0	5
13:00	12	1	0	0	0	21	4	0	1	0	4
13:15	11	0	2	0	0	13	3	0	1	0	4
13:30	13	0	0	0	0	15	6	0	1	0	8
13:45	17	0	0	0	0	17	4	0	1	0	5
14:00	12	0	1	0	0	18	3	1	2	0	5
14:15	14	0	0	0	0	13	5	0	0	0	4
14:30	10	1	1	0	0	15	4	0	0	0	5
14:45	9	0	0	0	0	10	6	0	1	0	6
15:15	7	1	1	1	0	6	6	1	0	0	7
15:45	8	0	2	0	0	10	6	0	0	0	6
16:00	14	1	0	0	0	15	4	0	1	0	5
16:30	8	0	2	0	0	8	3	0	0	0	3
16:45	12	0	2	0	0	11	5	0	0	0	5
17:15	10	0	0	0	0	10	3	0	0	0	4
17:30	19	0	0	0	0	11	5	0	0	0	5
17:45	14	0	0	2	0	10	4	0	0	3	17
18:15	15	0	1	0	0	17	4	0	0	0	2
18:30	11	0	0	0	0	16	4	0	1	0	6
18:45	13	0	0	0	0	13	7	0	0	0	7
20:00	671	14	66	50	0	16	4	0	0	0	4
20:15	671	14	66	50	0	13	4	0	0	0	4
20:30	671	14	66	50	0	11	2	0	1	0	11
20:45	671	14	66	50	0	14	5	1	0	0	4
20:57.5	671	14	66	50	0	14	5	1	0	0	8
20:59.5	671	14	66	50	0	14	5	1	0	0	8
21:00	671	14	66	50	0	14	5	1	0	0	8
21:01.5	671	14	66	50	0	14	5	1	0	0	8
21:03	671	14	66	50	0	14	5	1	0	0	8
21:04.5	671	14	66	50	0	14	5	1	0	0	8
21:06	671	14	66	50	0	14	5	1	0	0	8
21:07.5	671	14	66	50	0	14	5	1	0	0	8
21:09	671	14	66	50	0	14	5	1	0	0	8
21:10.5	671	14	66	50	0	14	5	1	0	0	8
21:12	671	14	66	50	0	14	5	1	0	0	8
21:13.5	671	14	66	50	0	14	5	1	0	0	8
21:15	671	14	66	50	0	14	5	1	0	0	8
21:16.5	671	14	66	50	0	14	5	1	0	0	8
21:18	671	14	66	50	0	14	5	1	0	0	8
21:19.5	671	14	66	50	0	14	5	1	0	0	8
21:21	671	14	66	50	0	14	5	1	0	0	8
21:22.5	671	14	66	50	0	14	5	1	0	0	8
21:24	671	14	66	50	0	14	5	1	0	0	8
21:25.5	671	14	66	50	0	14	5	1	0	0	8
21:27	671	14	66	50	0	14	5	1	0	0	8
21:28.5	671	14	66	50	0	14	5	1	0	0	8
21:30	671	14	66	50	0	14	5	1	0	0	8
21:31.5	671	14	66	50	0	14	5	1	0	0	8
21:33	671	14	66	50	0	14	5	1	0	0	8
21:34.5	671	14	66	50	0	14	5	1	0	0	8
21:36	671	14	66	50	0	14	5	1	0	0	8
21:37.5	671	14	66	50	0	14	5	1	0	0	8
21:39	671	14	66	50	0	14	5	1	0	0	8
21:40.5	671	14	66	50	0	14	5	1	0	0	8
21:42	671	14	66	50	0	14	5	1	0	0	8
21:43.5	671	14	66	50	0	14	5	1	0	0	8
21:45	671	14	66	50	0	14	5	1	0	0	8
21:46.5	671	14	66	50	0	14	5	1	0	0	8
21:48	671	14	66	50	0	14	5	1	0	0	8
21:49.5	671	14	66	50	0	14	5	1	0	0	8
21:51	671	14	66	50	0	14	5	1	0	0	8
21:52.5	671	14	66	50	0	14	5	1	0	0	8
21:54	671	14	66	50	0	14	5	1	0	0	8
21:55.5	671	14	66	50	0	14	5	1	0	0	8
21:57	671	14	66	50	0	14	5	1	0	0	8
21:58.5	671	14	66	50	0	14	5	1	0	0	8
22:00	671	14	66	50	0	14	5	1	0	0	8
22:01.5	671	14	66	50	0	14	5	1	0	0	8
22:03	671	14	66	50	0	14	5	1	0	0	8
22:04.5	671	14	66	50	0	14	5	1	0	0	8
22:06	671	14	66	50	0	14	5	1	0	0	8
22:07.5	671	14	66	50	0	14	5	1	0	0	8
22:09	671	14	66	50	0	14	5	1	0	0	8
22:10.5	671	14	66	50	0	14	5	1	0	0	8
22:12	671	14	66	50	0	14	5	1	0	0	8
22:13.5	671	14	66	50	0	14	5	1	0	0	8
22:15	671	14	66	50	0	14	5	1	0	0	8
22:16.5	671	14	66	50	0	14	5	1	0	0	8
22:18	671	14	66	50	0	14	5	1	0	0	8
22:19.5	671	14	66	50	0	14	5	1	0	0	8
22:21	671	14	66	50	0	14	5	1	0	0	8
22:22.5	671	14	66	50	0	14	5	1	0	0	8
22:24	671	14	66	50	0	14	5	1	0	0	8
22:25.5	671	14	66	50	0	14	5	1	0	0	8
22:27	671	14	66	50	0	14	5	1	0	0	8
22:28.5	671	14	66	50	0	14	5	1	0	0	8
22:30	671	14	66	50	0	14	5	1	0	0	8
22:31.5	671	14	66	50	0	14	5	1	0	0	8
22:33	671	14	66	50	0	14	5	1	0	0	8
22:34.5	671	14	66	50	0	14	5	1	0	0	8
22:36	671	14	66	50	0	14	5	1	0	0	8
22:37.5	671	14	66	50	0	14	5	1	0	0	8
22:39	671	14	66	50	0	14	5	1	0	0	8
22:40.5	671	14	66	50	0	14	5	1	0	0	8
22:42	671	14	66	50	0	14	5	1	0	0	8
22:43.5	671	14	66	50	0	14	5	1	0	0	8
22:45	671	14	66	50	0	14	5	1	0	0	8
22:46.5	671	14	66	50	0	14	5	1	0	0	8
22:48	671	14	66	50	0	14	5	1	0	0	8
22:49.5	671	14	66	50	0	14	5	1	0	0	8
22:51	671	14	66	50	0	14	5	1	0	0	8
22:52.5	671	14	66	50	0	14	5	1	0	0	8
22:54	671	14	66	50	0	14	5	1	0	0	8
22:55.5	671	14	66	50	0	14	5	1	0	0	8
22:57	671	14	66	50	0	14	5	1	0	0	8
22:58.5	671	14	66	50	0	14	5	1	0	0	8
23:00	671	14	66	50	0	14	5	1	0	0	8
23:01.5	671	14	66	50	0	14	5	1	0	0	8
23:03	671	14	66	50	0	14	5	1	0	0	8
23:04.5	671	14	66	50	0	14	5	1	0	0	8
23:06	671	14	66	50	0	14	5	1	0	0	8
23:07.5	671	14	66	50	0	14	5	1	0	0	8
23:09	671	14	66	50	0	14	5	1	0	0	8
23:10.5	671	14	66	50	0	14	5	1	0	0	8
23:12	671	14	66	50	0	14	5	1	0	0	8
23:13.5	671	14	66	50	0	14	5	1	0	0	8
23:15	671	14	66	50	0	14	5	1	0	0	8
23:16.5	671	14	66	50	0	14	5	1	0	0	8
23:18	671	14	66	50	0	14	5	1	0	0	8
23:19.5	671	14	66	50	0	14	5	1	0	0	8
23:21	671	14	66	50							



Site No. 2
Location Moyglare Road(N) / Moyglare Road(S) / Maravilla
Date Tuesday 28 May 2019

Time	To Arm A - Moyglare Road(N)				From Arm A - Moyglare Road(N)				Veh. Total	P/C	M/C	P/C	Veh. Total
	CAR	Taxi	LGV	HGV	PSV	M/C	PSV	HGV					
7:00	21	0	4	0	0	0	0	9	25	0	0	0	35
7:15	27	0	10	1	0	0	0	12	38	0	0	0	46
7:30	32	0	4	3	1	0	0	6	40	0	0	0	45
7:45	25	0	2	6	0	0	0	7	33	0	0	0	69
8:00	28	1	5	2	0	0	0	3	36	0	0	0	45
8:15	52	0	3	0	1	0	0	4	56	0	0	0	74
8:30	60	0	3	2	0	0	0	1	66	0	0	0	74
8:45	54	2	4	3	0	0	0	5	63	0	0	0	80
9:00	30	0	1	4	1	0	0	5	36	0	0	0	65
9:15	30	3	1	5	0	0	0	3	39	0	0	0	48
9:30	20	0	4	4	0	0	0	3	28	0	0	0	37
9:45	16	1	2	3	0	0	0	2	22	0	0	0	31
10:00	27	0	3	0	0	0	0	6	31	0	0	0	33
10:15	11	0	5	3	0	0	0	4	19	0	0	0	25
10:30	13	1	4	3	0	0	0	4	21	0	0	0	32
10:45	25	0	5	4	0	0	0	4	35	0	0	0	37
11:00	28	1	2	6	0	0	0	3	37	0	0	0	41
11:15	22	0	6	3	0	0	0	1	31	0	0	0	33
11:30	24	0	2	5	0	0	0	4	31	0	0	0	41
11:45	28	0	3	1	0	0	0	3	32	0	0	0	49
12:00	21	0	3	1	0	0	0	2	25	0	0	0	33
12:15	25	1	8	0	0	0	0	4	34	0	0	0	35
12:30	26	0	2	1	0	0	0	4	29	0	0	0	27
12:45	23	0	0	4	0	0	0	3	27	0	0	0	22
13:00	24	0	1	0	0	0	0	5	25	0	0	0	24
13:15	30	0	6	6	0	0	0	2	43	0	0	0	35
13:30	34	0	2	1	0	0	0	4	37	0	0	0	36
13:45	24	2	6	2	0	0	0	3	34	0	0	0	43
14:00	26	1	3	3	0	0	0	8	37	0	0	0	41
14:15	46	0	2	0	0	0	0	1	48	0	0	0	36
14:30	39	0	5	0	0	0	0	2	44	0	0	0	39
14:45	31	0	4	0	0	0	0	3	36	0	0	0	71
15:00	44	0	5	3	0	0	0	2	54	0	0	0	41
15:15	26	1	6	4	0	0	0	3	37	0	0	0	40
15:30	28	0	4	1	0	0	0	1	33	0	0	0	50
15:45	31	0	8	2	0	0	0	5	42	0	0	0	57
16:00	59	0	5	3	1	0	0	9	70	0	0	0	52
16:15	50	0	7	1	0	0	0	10	59	0	0	0	50
16:30	55	0	8	1	0	0	0	7	67	0	0	0	47
16:45	43	0	8	2	0	0	0	4	54	0	0	0	54
17:00	57	0	6	2	0	0	0	6	66	0	0	0	56
17:15	78	0	9	1	0	0	0	6	88	0	0	0	54
17:30	57	0	6	0	0	0	0	6	64	0	0	0	63
17:45	66	0	3	1	0	0	0	2	71	0	0	0	76
18:00	33	4	3	1	0	0	0	4	42	0	0	0	38
18:15	34	1	5	0	0	0	0	1	42	0	0	0	67
18:30	36	0	3	0	0	0	0	3	38	0	0	0	42
18:45	32	1	2	0	0	0	0	2	38	0	0	0	47
25:75	1651	20	203	98	7	3	20	218	1893	21	112	7	2260



Site No. 2
Location Moyglare Road(N) / Moyglare Road(S) / Maravilla
Date Tuesday 28 May 2019

Time	To Arm B - Moyglare Road(S)				From Arm B - Moyglare Road(S)				Veh. Total	P/C	M/C	P/C	Veh. Total
	CAR	Taxi	LGV	HGV	PSV	M/C	PSV	HGV					
7:00	49	0	11	1	0	0	0	4	62	0	0	0	27
7:15	55	1	13	2	0	0	0	1	71	0	0	0	38
7:30	48	1	7	6	0	0	0	3	62	0	0	0	31
7:45	75	0	8	3	0	0	0	6	88	0	0	0	31
8:00	62	0	3	7	0	0	0	2	74	0	0	0	29
8:15	95	1	3	1	1	0	0	4	102	0	0	0	42
8:30	102	0	8	2	1	0	0	3	113	0	0	0	36
8:45	85	0	5	8	1	0	0	5	100	0	0	0	52
9:00	79	0	7	6	0	0	0	3	93	0	0	0	44
9:15	68	1	1	1	0	0	0	4	72	0	0	0	47
9:30	42	3	2	4	0	0	0	3	52	0	0	0	39
9:45	42	0	4	5	0	0	0	1	51	0	0	0	21
10:00	28	1	7	4	0	0	0	6	33	0	0	0	40
10:15	29	0	5	0	0	0	0	5	34	0	0	0	24
10:30	33	0	9	2	0	0	0	3	45	0	0	0	27
10:45	32	1	3	4	0	0	0	4	40	0	0	0	35
11:00	34	0	2	3	0	0	0	7	39	0	0	0	47
11:15	27	0	2	4	0	0	0	6	37	0	0	0	32
11:30	42	0	6	3	0	0	0	1	51	0	0	0	34
11:45	43	0	4	3	0	0	0	2	50	0	0	0	29
12:00	34	0	5	1	0	0	0	4	40	0	0	0	34
12:15	36	0	3	2	0	0	0	10	42	0	0	0	46
12:30	32	0	10	2	0	0	0	2	44	0	0	0	45
12:45	31	1	6	3	0	0	0	1	41	0	0	0	33
13:00	27	2	5	2	0	0	0	2	36	0	0	0	37
13:15	35	0	5	4	0	0	0	6	45	0	0	0	56
13:30	40	2	2	6	0	0	0	4	50	0	0	0	45
13:45	46	1	3	2	0	0	0	5	52	0	0	0	44
14:00	36	0	8	0	0	0	0	2	45	0	0	0	44
14:15	35	0	0	4	0	0	0	4	40	0	0	0	54
14:30	44	0	2	2	0	0	0	5	50	0	0	0	48
14:45	55	1	3	6	0	0	0	3	65	0	0	0	44
15:00	37	0	1	4	0	0	0	5	42	0	0	0	71
15:15	33	3	5	4	0	0	0	7	45	0	0	0	48
15:30	43	1	2	0	0	0	0	6	46	0	0	0	43
15:45	52	1	4	2	1	0	0	7	60	0	0	0	47
16:00	37	0	10	2	0	0	0	3	49	0	0	0	88
16:15	32	1	10	1	1	0	0	8	45	0	0	0	70
16:30	38	0	7	1	1	0	0	2	47	0	0	0	78
16:45	43	1	5	2	1	0	0	3	50	0	0	0	47
17:00	40	0	8	2	0	0	0	8	50	0	0	0	91
17:15	36	0	6	0	0	0	0	9	42	0	0	0	91
17:30	55	0	5	2	0	0	0	6	62	0	0	0	79
17:45	62	2	6	2	0	0	0	6	72	0	0	0	92
18:00	46	0	3	1	0	0	0	4	50	0	0	0	66
18:15	1815	1	2	2	0	0	0	5	49	0	0	0	57
18:30	33	3	1	2	0	0	0	2	40	0	0	0	63
18:45	51	0	2	0	0	0	0	3	55	0	0	0	50
25:75	2206	29	239	130	7	6	18	221	2635	1917	26	8	3305

Site No.	Location	Date
2	Moylare Road(N) / Moylare Road(S) / Mariavilla	Tuesday, 28 May, 2019

TUESDAY 28 MAY 2019															
Date	A to C - Mayglare Road(N) to Manawilla							Ven.	A to B - Mayglare Road(N) to Mayglare Road(S)						
	Car	Taxi	GV	HGV	PSV	M/C	P/C		Car	Taxi	GV	HGV	PSV	M/C	P/C
7:00	2	0	1	0	0	0	0	3	22	0	8	2.3	0	0	0
7:15	4	0	2	0	0	0	0	6	28	0	10	4.6	0	0	0
7:30	1	0	2	0	0	0	0	3	30	0	6	13.8	0	0	0
7:45	5	0	2	2.3	0	0	0	9.3	54	0	5	2.3	0	0.4	0
8:00	2	0	0	0	0	0	0	34	34	0	3	11.5	0	0	0.2
8:15	4	0	1	0	0	0	0	5	64	0	3	2.3	2	0	0
8:30	4	1	0	0	0	0	0	5	60	0	7	2.3	2	0	0
8:45	4	0	1	2.3	0	0	0	7.3	61	0	4	16.1	2	0	0.2
9:00	8	0	1	0	0	0	0	9	62	0	4	13.8	0	0	0.2
9:15	5	0	3	2.3	0	0	0	10.3	54	0	0	2.3	0	0	0.2
9:30	4	0	1	2.3	0	0	0	7.3	36	3	0	4.6	0	0	0.2
9:45	1	0	0	0	0	0	0	1	31	0	2	6.9	0	0	0
10:00	4	0	0	0	0	0	0	4	19	0	6	9.2	0	0	0
10:15	2	0	1	0	0	0	0	3	19	0	3	0	0	0	0
10:30	1	0	0	0	0	0	0	1	25	0	4	4.6	0	0	0
10:45	1	0	1	2.3	0	0	0	4.3	27	1	3	6.9	0	0	0
11:00	1	0	1	2.3	0	0	0	4.3	14	0	2	4.6	0	0	0
11:15	2	0	1	2.3	0	0	0	5.3	22	0	0	6.9	0	0	0.8
11:30	2	0	0	0	0	0	0	2	32	0	4	6.9	0	0	0
11:45	8	0	0	0	0	0	0	8	34	0	4	6.9	0	0	0
12:00	6	0	1	0	0	0	0	7	24	0	4	6.9	0	0	0
12:15	4	0	1	0	0	0	0	5	25	0	3	2.3	0	0	0.2
12:30	5	0	0	2.3	0	0	0	7.3	16	0	4	2.3	0	0	0
12:45	2	0	0	0	0	0	0	2	14	0	3	6.9	0	0	0
13:00	1	0	0	0	0	0	0	1	15	1	5	4.6	0	0	0
13:15	4	0	1	0	0	0	0	5	24	0	4	4.6	0	0	0
13:30	1	1	1	0	0	0	0	3	27	0	2	9.2	0	0	0
13:45	8	0	0	2.3	0	0	0	10.3	27	1	3	2.3	0	0	0
14:00	3	0	1	0	0	0	0	4	24	0	7	0	0	0	0.2
14:15	7	0	1	0	0	0	0	8	23	0	4	4.6	0	0	0
14:30	3	0	1	0	0	0	0	4	30	0	1	4.6	0	0	0.4
14:45	17	0	0	4.6	0	0	0	4	45	0	2	11.5	0	0	0
15:00	8	0	1	0	0	0	0	9	28	0	1	6.9	0	0	0
15:15	4	1	0	0	0	0	0	5	26	2	4	6.9	0	0	0
15:30	11	2	1	0	0	0	0	14	35	1	0	0	0	0	0
15:45	10	1	1	0	0	0	0	12	38	0	4	4.6	2	0	0
16:00	10	0	1	0	0	0	0	14	31	0	8	4.6	0	0	0
16:15	14	0	2	0	0	0	0	16	24	0	8	2.3	2	0	0
16:30	7	0	2	2.3	0	0	0	11.3	31	0	5	0	2	0	0
16:45	17	0	2	0	0	0	0	19	31	0	2	2.3	2	0	0
17:00	16	0	2	0	0	0	0	16.2	32	0	4	2.3	0	0	0
17:15	22	0	0	0	0	0	0	22	26	0	6	0	0	0	0
17:30	19	0	1	0	0	0	0	20	36	0	5	4.6	0	0	0
17:45	20	0	0	0	0	0	0	23	48	2	0	0	0	0	0
18:00	20	0	1	0	0	0	0	21	33	0	3	2.3	0	0	0
18:15	27	0	4	0	0	0	0	31	32	1	1	4.6	0	0	0
18:30	11	0	2	0	0	0	0	13	22	3	1	4.6	0	0	0.2
18:45	6	0	0	0	0	0	0	6	38	0	0	0	0	0	0
Total	348	6	45	27.6	0	0	0	426.8	1535	15	173	230	14	0.8	3.2

CAR	TAXI	LGV	HGV	PSV	M/C	P/C
1	1	1	2.3	2	0.4	0.2



Site No. 2
Location Moyglare Road(N) / Moyglare Road(S) / Marivilla
Date Tuesday 28 May 2019

Time	B to A - Moyglare Road(S) to Moyglare Road(N)					B to C - Moyglare Road(S) to Marivilla					Ven. Total
	CAR	Totl	GVW	PSV	P/C	CAR	Totl	GVW	PSV	P/C	
7:00	14	0	3	0	0	7	0	1	0	0	8
7:15	15	0	7	2.3	0	10	1	4	0	0	15
7:30	15	0	3	6.9	2	0	0	0	0	0	9
7:45	16	0	2	13.8	0	6	0	1	0	0	7
8:00	16	1	5	4.6	0	5	0	0	0	0	5
8:15	27	0	3	0	0	9	0	1	2.3	0	12.3
8:30	26	0	3	4.6	0	4	1	0	0	0	5
8:45	33	1	3	6.9	0	10	0	0	4.6	0	14.6
9:00	22	0	1	9.2	2	12	0	2	2.3	0	16.5
9:15	25	2	1	9.2	0	14	0	1	0	0	15
9:30	18	0	3	4.6	0	0	0	0	4.6	0	18.6
9:45	11	1	1	4.6	0	6	0	0	0	0	6
10:00	22	0	3	0	0	11	0	3	0	0	14
10:15	10	0	4	6.9	0	5	0	1	0	0.4	6.4
10:30	10	1	2	4.6	0	10	0	1	2.3	0	13.3
10:45	23	0	4	6.9	0	4	0	0	0	0	4
11:00	25	1	1	9.2	0	8	0	6	2.3	0.4	16.7
11:15	20	0	5	4.6	0	3	1	1	0	0	5
11:30	21	0	0	11.5	0	6	0	1	2.3	0	9.3
11:45	20	0	2	2.3	0	24.3	6	0	0	0	6
12:00	19	0	3	2.3	0	10	0	1	0	0	11
12:15	20	1	6	0	0	27	12	0	4	4.6	20.8
12:30	22	0	1	2.3	0	18	0	1	4.6	0	23.6
12:45	19	0	0	9.2	0	26.2	9	1	0	0	10
13:00	21	0	0	0	0	21	11	2	2.3	0	17.3
13:15	24	0	5	11.5	0	40.7	18	1	2.3	0	22.3
13:30	30	0	1	2.3	0	33.3	8	0	3	4.6	15.6
13:45	21	1	4	4.6	0	30.6	13	1	1	2.3	17.3
14:00	23	1	3	4.6	0	31.6	12	1	1	0	14.4
14:15	39	0	2	0	0	41	12	0	0	2.3	14.3
14:30	35	0	3	0	0	38	8	0	2	0	10
14:45	26	0	2	0	0	30	14	0	1	0	15
15:00	38	0	4	4.6	0	47	23	1	1	0	25
15:15	20	0	6	9.2	0	35.2	16	0	1	2.3	19.3
15:30	22	0	4	2.3	0	28.3	4	0	0	0	16
15:45	27	0	7	4.6	0	36.8	8	1	0	0.4	9.4
16:00	56	0	5	6.9	2	70.5	18	1	2	0	21
16:15	45	0	7	2.3	0	54.5	15	0	1	0	16
16:30	53	0	8	2.3	0	63.3	15	0	0	0	17.3
16:45	32	0	2	4.6	0	38.8	9	0	0	0	11.3
17:00	55	0	6	4.6	0	65.8	14	0	2	0	16
17:15	74	0	8	0	0	82	7	0	1	2.3	10.3
17:30	53	0	6	0	0.4	59.4	18	0	0	2.3	20.3
17:45	59	0	3	2.3	0	64.5	25	0	3	0	28
18:00	29	4	3	2.3	0	36.5	26	0	2	0	28
18:15	26	0	3	0	0.4	29.6	23	1	2	0	26
18:30	34	0	2	0	0	36	25	1	0	0.4	26.4
18:45	27	0	1	0	0	32	18	0	2	0	20
25:75	1340	14	161	195.5	14	1728.3	577	14	60	55.2	705.6



Site No. 2
Location Moyglare Road(N) / Moyglare Road(S) / Marivilla
Date Tuesday 28 May 2019

Time	C to B - Marivilla to Moyglare Road(S)					C to A - Marivilla to Moyglare Road(N)					Ven. Total
	CAR	Totl	GVW	PSV	P/C	CAR	Totl	GVW	PSV	P/C	
7:00	27	1	3	0	0	5	0	1	0	0	30
7:15	27	1	3	0	0	12	0	3	0	0	31
7:30	18	1	1	0	0	17	0	1	0	0	20
7:45	21	0	3	4.6	0	9	0	0	0	0	28.8
8:00	28	0	0	4.6	0	12	0	0	0	0.2	33
8:15	31	1	0	0	0.4	25	0	0	0	0	32.4
8:30	42	0	1	2.3	0	34	0	0	0	0	45.3
8:45	24	0	1	2.3	0	21	1	1	0	0	27.3
9:00	17	0	3	0	0	8	0	0	0	0	20
9:15	14	1	1	0	0	5	1	0	2.3	0	16
9:30	6	0	2	4.6	0	2	0	1	4.6	0	12.6
9:45	11	0	2	4.6	0	5	0	1	2.3	0	17.6
10:00	9	1	1	0	0	5	0	0	0	0	11
10:15	10	0	2	0	0	12	1	0	1	0	2
10:30	8	0	5	0	0.4	3	0	2	2.3	0	13.4
10:45	5	0	0	2.3	0	2	0	1	2.3	0	7.3
11:00	20	0	0	2.3	0	22.3	3	0	1	4.6	22.3
11:15	5	0	2	2.3	0	9.3	2	0	1	2.3	9.3
11:30	10	0	2	0	0	12	3	0	0	0	12
11:45	9	0	0	0	0	8	0	1	0	0	9
12:00	10	0	4	0	0	2	0	0	0	0	14
12:15	11	0	0	2.3	0	13.3	5	0	2	0	13.3
12:30	16	0	6	2.3	0	24.3	4	0	1	0	24.3
12:45	17	1	3	0	0	4	0	0	0	0	21
13:00	12	1	0	0	0	13	3	0	1	0	13
13:15	11	0	1	4.6	0	6	0	1	2.3	0	17
13:30	13	2	0	4.6	0	19.6	4	0	1	0	19.6
13:45	17	0	0	2.3	0	19.3	3	1	2	0	19.3
14:00	12	0	1	0	0	13	3	0	0	0	13
14:15	12	0	0	4.6	0	16.6	7	0	0	0	16.6
14:30	14	0	1	0	0	15	4	0	2	0	15
14:45	10	1	1	2.3	0	14.3	5	0	2	0	14.3
15:00	9	0	0	2.3	0	11.3	6	0	1	2.3	11.3
15:15	7	1	1	2.3	0	11.3	6	1	0	0	11.3
15:30	8	0	2	0	0	10	6	0	0	0	10
15:45	14	1	0	0	0	15	4	0	1	0	15
16:00	6	0	2	0	0	8	3	0	0	0	8
16:15	8	1	2	0	0	11	5	0	0	0	11
16:30	7	0	2	2.3	0	11.3	2	0	0	0.6	11.3
16:45	12	1	3	2.3	0	18.3	11	0	6	0	18.3
17:00	8	0	4	2.3	0	14.3	2	0	0	0	14.3
17:15	10	0	0	0	0	10	4	0	1	2.3	10
17:30	19	0	0	0	0	19	4	0	0	0	19
17:45	14	0	0	4.6	0	18.6	7	0	0	0	18.6
18:00	13	0	0	0	0	13	4	0	0	0	13
18:15	15	0	1	0	0	16	8	1	2	0	16
18:30	11	0	0	0	0	11	2	0	1	0	11
18:45	13	0	0	0	0	13.2	5	1	1	0	13.2
25:75	671	14	65	69	0	622	311	6	42	29.9	693

Site No.

Location

Date

2

Moyglare Road(N) / Moyglare Road(S) / Marivilla

Tuesday, 28 May 2019

Time	To Arm B - Moyglare Road(S)					Veh. Total	From Arm B - Moyglare Road(S)					Veh. Total		
	CAR	Totl	LGV	HGV	FSV		CAR	Totl	LGV	HGV	FSV			
7:00	49	0	11	2.3	0	62.7	23	0	4	0	0	27		
7:15	55	1	13	4.6	0	73.6	25	1	11	2.3	0	39.3		
7:30	48	1	7	13.8	0	69.8	24	0	3	6.9	2	35.9		
7:45	75	0	8	6.9	0	62.8	22	0	3	13.8	0	36.6		
8:00	62	0	3	16.1	0	81.7	21	1	5	4.6	0	31.6		
8:15	95	1	3	2.3	2	103.7	36	0	4	2.3	2	44.3		
8:30	102	0	8	4.6	2	116.6	30	1	3	4.6	0	44.3		
8:45	85	0	5	18.4	2	110.6	43	1	3	11.5	0	38.6		
9:00	79	0	7	13.8	0	100	34	0	3	11.5	2	58.5		
9:15	48	1	1	2.3	0	72.5	39	2	2	9.2	0	52.2		
9:30	42	3	2	9.2	0	56.4	31	1	3	9.2	0	44.2		
9:45	42	0	4	11.5	0	57.5	17	1	1	4.6	0	23.6		
10:00	28	1	7	9.2	0	45.2	33	0	6	0	0	39.2		
10:15	29	0	5	0	0	34	15	0	5	6.9	0	27.3		
10:30	33	0	9	4.6	0	47	20	1	3	6.9	0	30.9		
10:45	32	1	3	9.2	0	45.2	27	0	4	6.9	0	38.1		
11:00	34	0	2	6.9	0	42.9	33	1	7	11.5	0	52.9		
11:15	27	0	2	9.2	0	39	23	1	6	4.6	0	34.6		
11:30	42	0	6	6.9	0	54.9	27	0	1	13.8	0	41.8		
11:45	43	0	4	6.9	0	53.9	26	0	2	2.3	0	30.3		
12:00	34	0	5	2.3	0	41.3	29	0	4	2.3	0	35.3		
12:15	36	0	3	4.6	0	43.6	32	1	10	4.6	0	47.8		
12:30	32	0	10	4.6	0	46.6	40	0	2	6.9	0	48.9		
12:45	31	1	6	6.9	0	44.9	28	0	1	9.2	0	38.2		
13:00	27	2	5	4.6	0	38.6	52	2	2	2.3	0	38.3		
13:15	35	0	5	9.2	0	49.6	42	1	6	13.8	0	43		
13:30	46	2	3	13.8	0	57.8	38	0	4	6.9	0	48.9		
13:45	46	1	3	4.6	0	54.6	34	2	5	6.9	0	47.9		
14:00	36	0	8	0	0	44.2	35	2	4	4.6	0	46		
14:15	35	0	0	9.2	0	44.4	51	0	2	2.3	0	53.3		
14:30	44	0	2	4.6	0	51	43	0	5	0	0	48		
14:45	55	1	3	13.8	0	72.8	40	0	3	0	2	45		
15:00	37	0	1	9.2	0	47.2	61	1	5	4.6	0	72		
15:15	33	3	5	9.2	0	50.2	36	0	7	11.5	0	54.5		
15:30	43	1	2	0	0	46	36	0	6	2.3	0	44.3		
15:45	52	1	4	4.6	2	63.6	35	1	7	4.6	0	48.2		
16:00	37	0	10	4.6	0	51.6	74	1	7	6.9	2	91.3		
16:15	32	1	1	2.3	2	47.3	60	0	8	2.3	0	70.5		
16:30	38	0	7	2.3	2	49.3	68	0	8	4.6	0	80.6		
16:45	43	1	5	4.6	2	55.6	41	0	2	6.9	0	50.1		
17:00	40	0	8	4.6	0	52.6	69	0	8	4.6	0	81.8		
17:15	36	0	6	0	0	42	81	0	9	2.3	0	92.3		
17:30	55	0	5	4.6	0	64.6	71	0	6	2.3	0	79.7		
17:45	62	2	6	4.6	0	74.6	84	0	6	2.3	0	92.5		
18:00	46	0	3	2.3	0	51.3	55	4	5	2.3	0	66.3		
18:15	47	1	2	4.6	0	54.6	49	1	5	0	0	55.6		
18:30	33	3	1	4.6	0	41.8	59	1	2	0	0	52.4		
18:45	51	0	2	0	0	53.4	45	0	3	0	4	52		
25:75	2206	29	239	299	4	2793	1917	28	221	250.7	14	3.2	3	2436.9

2

Site No.

Moylagre Road(N) / Moylagre Road(S) / Manavilla

Tuesday 28 May 2019

Date

Time	To Arm A - Moylagre Road(N)					From Arm A - Moylagre Road(N)					Veh.	Total				
	CAR	Tot	GV	HGV	PSV	M/C	P/C	CAR	Tot	GV			HGV	PSV	M/C	P/C
7:00	21	0	1	0	0	0	0	25	24	0	9	23	0	0.4	0	35.7
7:15	27	0	10	23	0	0	0	39.3	32	0	12	4.6	0	0	0	48.6
7:30	32	0	4	6.9	2	0	0	44.9	31	0	6	13.8	0	0	0	52.8
7:45	25	0	2	13.8	0	0	0	40.8	59	0	7	4.6	0	0.4	0	71
8:00	28	1	5	4.6	0	0	0.2	35.8	36	0	3	11.5	0	0	0	50.7
8:15	52	0	3	0	2	0	0	57	68	0	4	2.3	2	0	0	76.3
8:30	60	0	3	4.6	0	0	0.2	67.8	64	1	7	2.3	2	0	0	76.3
8:45	54	2	4	6.9	0	0	0	64.9	65	0	5	13.4	2	0	0	90.6
9:00	30	0	1	9.2	2	0	0	42.2	70	0	5	13.8	0	0	0	89
9:15	30	3	1	11.5	0	0	0	45.5	59	0	3	4.6	0	0	0.2	66.8
9:30	20	0	4	9.2	0	0	0	33.2	40	3	1	6.9	0	0	0.2	51.1
9:45	16	1	2	6.9	0	0	0	25.9	32	0	2	6.9	0	0	0	40.9
10:00	27	0	3	0	0	0	0.2	30.2	23	0	6	9.2	0	0	0	38.2
10:15	11	0	5	6.9	0	0	0	23.9	21	0	4	0	0	0	0	25
10:30	13	1	4	6.9	0	0	0	24.9	26	0	4	4.6	0	0	0	34.6
10:45	25	0	5	9.2	0	0	0.2	39.4	28	1	4	9.2	0	0	0	42.2
11:00	28	1	2	13.8	0	0	0	44.3	15	0	3	6.9	0	0	0	34.3
11:15	22	0	6	6.9	0	0	0	34.9	24	0	1	9.2	0	0	0	24.9
11:30	24	0	2	11.5	0	0	0	37.5	34	0	4	6.9	0	0	0.8	35
11:45	28	0	3	2.3	0	0	0	33.3	42	0	4	6.9	0	0	0	44.9
12:00	21	0	3	2.3	0	0	0	28.3	30	0	2	2.3	0	0	0	52.9
12:15	25	1	8	0	0	0	0	34	29	0	4	2.3	0	0	0	34.3
12:30	26	0	2	2.3	0	0	0	30.3	21	0	4	4.6	0	0	0	35.5
12:45	23	0	0	9.2	0	0	0	32.2	16	0	3	6.9	0	0	0	29.6
13:00	24	0	1	0	0	0	0	25	16	1	5	4.6	0	0	0	26.6
13:15	30	0	6	13.8	0	0	0.2	50	28	0	5	4.6	0	0	0	37.6
13:30	34	0	2	2.3	0	0	0	38.3	28	1	3	9.2	0	0	0	41.2
13:45	24	2	6	4.6	0	0	0	36.6	37	1	3	4.6	0	0	0	45.6
14:00	26	1	3	6.9	0	0	0	36.9	27	0	8	0	0	0	0	45.6
14:15	46	0	2	0	0	0	0	48	30	0	1	4.6	0	0.2	0.2	35.2
14:30	39	0	5	0	0	0	0	44	33	0	2	4.6	0	0	0.4	38.6
14:45	31	0	4	0	2	0	0.4	37	42	0	2	16.1	0	0	0	80.1
15:00	44	0	5	6.9	0	0	0	56.3	36	0	2	6.9	0	0	0	44.9
15:15	26	1	6	9.2	0	0	0	42.2	30	3	4	6.9	0	0	0	43.9
15:30	28	0	4	2.3	0	0	0	34.3	46	3	1	0	0	0	0	50
15:45	31	0	8	4.6	0	0	0.2	43.8	48	1	5	4.6	2	0	0	60.6
16:00	59	0	5	6.9	2	0	0.4	73.5	41	0	9	4.6	0	0	0	34.6
16:15	50	0	7	2.3	0	0	0.2	59.5	36	0	10	2.3	2	0	0	52.3
16:30	55	0	8	2.3	0	0	0.6	65.9	38	0	7	2.3	2	0	0	49.3
16:45	43	0	8	4.6	0	0	0.2	55.8	48	0	4	2.3	2	0	0	56.3
17:00	57	0	6	4.6	0	0	0.2	67.8	48	0	6	2.3	0	0	0.2	36.3
17:15	78	0	9	2.3	0	0	0	89.3	48	0	6	0	0	0	0	54
17:30	57	0	6	0	0	0	0	68.4	55	0	6	4.6	0	0	0	65.6
17:45	66	0	3	2.3	0	0	0.4	71.5	66	2	6	0	0	0	0	76
18:00	33	4	3	2.3	0	0	0.2	42.3	53	0	4	2.3	0	0	0	59.3
18:15	34	1	5	0	0	0	0.4	40.6	59	1	5	4.6	0	0	0	69.6
18:30	36	0	3	0	0	0	0.2	39.2	33	3	3	4.6	0	0	0	43.8
18:45	32	1	2	0	4	0	0.2	39.2	44	0	2	0	0	0	0.2	46.2
25:25	651	20	203	225.4	14	1.2	4	2118.6	1883	21	218	257.6	14	0.8	3.4	2397.8



Site No. 2
Location Moyglare Road(N) / Moyglare Road(S) / Marlayville
Date Tuesday 28 May 2019

Time	CAR	Taxi	LGW	HGV	PSV	M/C	P/C	Veh. Total	CAR	Taxi	LGW	HGV	PSV	M/C	P/C	Veh. Total
7:00	9	0	2	0	0	0	0	11	32	0	4	0	0	0	0	36
7:15	14	1	6	0	0	0	0	21	39	1	6	0	0	0	0	46
7:30	10	0	2	0	0	0	0	12	35	1	2	0	0	0	0	38
7:45	11	0	3	2.3	0	0	0	16.3	30	0	3	4.6	0	0	0.2	37.8
8:00	7	0	0	0	0	0	0	7	40	0	0	4.6	0	0.4	0.2	45.2
8:15	13	0	2	2.3	0	0	0	17.3	56	1	0	0	0	0.4	0	57.4
8:30	8	2	0	0	0	0	0	10	76	0	1	2.3	0	0	0.2	79.5
8:45	14	0	1	6.9	0	0	0	21.9	45	1	2	2.3	0	0	0	50.3
9:00	20	0	3	2.3	0	0	0.2	25.5	25	0	3	0	0	0	0	28
9:15	19	0	4	2.3	0	0	0	25.3	19	2	1	2.3	0	0	0	24.3
9:30	17	1	1	6.9	0	0	0	25.9	8	0	3	9.2	0	0	0	20.2
9:45	7	0	0	0	0	0	0	7	16	0	0	6.9	0	0	0	25.9
10:00	15	0	3	0	0	0	0	18	14	1	1	0	0	0	0	16
10:15	7	0	2	0	0	0.4	0	9.4	11	0	3	0	0	0	0	14
10:30	11	0	1	2.3	0	0	0	14.3	11	0	7	2.3	0	0.4	0	20.7
10:45	5	0	1	2.3	0	0	0	8.3	7	0	1	4.6	0	0	0	12.6
11:00	9	0	7	4.6	0	0.4	0	10.3	23	0	1	6.9	0	0	0	30.9
11:15	5	1	2	2.3	0	0	0	10.3	7	0	3	4.6	0	0	0	14.6
11:30	8	0	1	2.3	0	0	0	11.3	13	0	4	0	0	0	0	17
11:45	14	0	0	0	0	0	0	14	17	0	1	0	0	0	0	18
12:00	16	0	2	0	0	0	0	18	12	0	4	0	0	0	0	16
12:15	16	0	5	4.6	0	0.2	0	25.8	16	0	2	2.3	0	0	0	20.3
12:30	23	0	1	6.9	0	0	0	30.9	20	0	7	2.3	0	0	0	29.3
12:45	11	0	1	0	0	0	0	12	21	1	3	0	0	0	0	25
13:00	12	2	2	2.3	0	0	0	18.3	15	1	1	0	0	0	0	17
13:15	22	1	2	2.3	0	0	0	27.3	17	0	2	6.9	0	0.4	0	26.3
13:30	9	1	4	4.6	0	0	0	18.6	17	2	1	4.6	0	0	0	24.6
13:45	21	1	1	4.6	0	0	0	27.6	20	1	2	2.3	0	0	0	25.3
14:00	15	1	2	0	0	0.4	0	18.4	15	0	1	2.3	0	0	0	18.3
14:15	19	0	1	2.3	0	0	0	22.3	19	0	0	4.6	0	0	0	23.6
14:30	11	0	3	0	0	0	0	14	18	0	3	0	0	0	0	21
14:45	31	0	1	4.6	0	0	0	36.6	15	1	3	2.3	0	0	0	21.3
15:00	31	1	2	0	0	0	0	34	15	0	1	4.6	0	0	0	20.6
15:15	20	1	1	2.3	0	0	0	24.3	13	2	1	2.3	0	0	0	18.3
15:30	25	2	3	0	0	0	0	30	14	0	2	0	0	0	0	16
15:45	18	2	1	0	0	0.4	0	21.4	18	1	1	0	0	0	0	20
16:00	28	1	3	0	0	0	0	32	9	0	2	0	0	0	0	11
16:15	29	0	3	0	0	0	0	32	13	1	2	0	0	0	0	16
16:30	22	0	2	4.6	0	0	0	28.6	9	0	2	2.3	0	0	0.6	13.9
16:45	26	0	2	2.3	0	0	0	30.3	23	1	9	2.3	0	0	0	35.3
17:00	30	0	4	0	0	0.2	0	34.2	10	0	4	2.3	0	0	0	16.3
17:15	29	0	1	2.3	0	0	0	32.3	14	0	1	2.3	0	0	0	17.3
17:30	37	0	1	2.3	0	0	0	40.3	23	0	0	0	0	0	0	23
17:45	45	0	3	0	0	0	0	48	21	0	0	4.6	0	0	0	25.6
18:00	46	0	3	0	0	0	0	49	17	0	0	0	0	0	0	17
18:15	50	1	6	0	0	0	0	57	23	1	3	0	0	0	0	27
18:30	36	1	2	0	0	0.4	0	39.4	13	0	1	0	0	0	0	14.2
18:45	24	0	2	0	0	0	0	26	1	1	0	0	0	0	0	20.4
25:75	925	20	105	828	0	2	0.6	1135.4	982	20	108	98.9	0	1.6	1.8	1212.3



Site No. 3
Location Owenstown(N) / Owenstown(W) / Moygaddy
Date Tuesday 28 May 2019

Time	CAR	Taxi	LGW	HGV	PSV	M/C	P/C	Veh. Total	CAR	Taxi	LGW	HGV	PSV	M/C	P/C	Veh. Total
7:00	19	0	1	0	0	0	0	20	2	0	2	0	0	0	0	4
7:15	23	0	5	1	0	0	0	29	4	0	2	0	0	0	0	6
7:30	30	0	5	0	0	0	0	35	6	0	2	0	0	0	0	8
7:45	25	0	4	0	0	0	0	29	4	0	0	1	0	0	0	5
8:00	26	0	1	0	0	0	0	27	7	0	2	0	0	0	0	9
8:15	19	0	4	0	0	0	0	23	5	0	2	0	0	0	0	7
8:30	23	0	5	1	0	0	0	29	6	0	1	0	0	0	0	7
8:45	19	0	1	0	0	0	0	20	8	0	0	0	0	0	0	8
9:00	21	0	2	0	0	0	0	23	11	0	1	0	0	0	0	12
9:15	36	0	1	0	0	0	0	37	12	0	0	1	0	0	0	13
9:30	30	2	1	1	0	0	0	35	7	2	0	0	0	0	0	9
9:45	20	0	0	1	0	0	0	21	5	0	0	0	0	0	0	5
10:00	15	0	2	1	2	0	0	20	2	0	1	0	0	0	0	3
10:15	6	0	1	0	0	0	0	7	4	0	1	1	0	0	0	6
10:30	5	0	0	1	0	0	0	6	4	0	1	0	0	0	0	5
10:45	12	0	1	0	0	0	0	13	1	0	0	0	0	0	0	1
11:00	11	0	3	0	0	0	0	14	5	0	3	1	0	0	0	9
11:15	11	0	0	0	0	0	0	11	3	0	2	0	0	0	0	5
11:30	5	0	1	0	0	0	0	6	9	0	1	0	0	0	0	10
11:45	13	1	0	1	0	0	0	15	7	0	1	0	0	0	0	8
12:00	9	0	1	0	0	0	0	10	4	0	0	0	0	0	0	4
12:15	9	0	0	1	0	0	0	10	1	0	1	0	0	0	0	2
12:30	10	0	1	0	0	0	0	11	4	0	0	0	0	0	0	4
12:45	10	0	1	0	0	0	0	11	1	0	0	0	0	0	0	1
13:00	10	0	1	0	0	0	0	11	3	0	0	0	0	0	0	3
13:15	4	0	0	0	0	0	0	4	5	0	0	0	0	0	0	5
13:30	7	0	1	0	0	0	0	8	3	0	2	0	0	0	0	5
13:45	10	0	2	0	0	0	0	12	1	0	2	0	0	0	0	3
14:00	16	0	1	0	0	0	0	17	8	0	0	0	0	0	0	8
14:15	7	0	0	0	0	0	0	7	3	0	0	0	0	0	0	4
14:30	7	0	1	0	0	0	0	8	2	0	1	0	0	0	0	3
14:45	6	0	0	0	0	0	0	6	2	0	0	0	0	0	0	2
15:00	18	0	1	0	0	0	0	19	13	0	0	0	0	0	0	13
15:15	26	0	0	0	0	0	0	26	11	2	1	0	0	0	0	14
15:30	13	1	1	1	0	0	0	16	6	0	0	0	0	0	0	6
15:45	15	0	1	0	2	0	0	18	8	0	0	0	0	0	0	8
16:00	18	0	3	0	0	0	0	21	5	0	1	0	0	0	0	6
16:15	20	0	3	0	0	0	0	23	4	0	0	1	0	0	0	5
16:30	17	0	2	0	0	0	0	19	1	0	1	1	0	0	0	3
16:45	10	0	2	0	0	0	0	12	8	0	2	0	0	0	0	10
17:00	7	0	1	0	0	0	0	8	6	0	1	0	0	0	0	7
17:15	10	0	1	0	0	0	0	11	5	0	1	0	0	0	0	6
17:30	13	0	1	0	0	0	0	14	8	0	0	0	0	0	0	8
17:45	5	0	1	0	0	0	0	6	7	0	0	0	0	0	0	7
18:00	10	0	2	0	0	0	0	12	5	0	3	0	0	0	0	8
18:15	12	0	3	0	0	0	0	15	3	1	0	0	0	0	0	4
18:30	14	0	2	0	0	0	0	16	3	0	1	0	0	0	0	4
18:45	12	0	0	0	0	0	0	12	8	0	0	0	0	0	0	8
Total	676	4	71	9	5	0	0	785	250	5	39	6	0	0	1	931



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 3
Location Owenstown(N) / Owenstown(W) / Moygaddy
Date Tuesday 28 May 2019

Date	Time	8 to A - Owenstown(W) to Owenstown(N)										Yen. Total	8 to C - Owenstown(W) to Moygatty										Veh. Total
		CAR	Taxi	LGV	HGV	PSV	M/C	P/C	CAR	Taxi	LGV		HGV	PSV	M/C	P/C							
Tuesday 26 May 2024	7:00	2	0	0	1	0	0	0	2	74	1	17	2	0	0	0	94						
	7:15	3	0	1	0	0	0	4	88	0	14	2	0	0	0	104							
	7:30	2	0	1	0	0	0	3	107	0	8	1	0	0	0	116							
	7:45	2	0	1	0	0	0	3								97							
	8:00	5	0	1	0	0	0	6	84	0	10	2	0	0	0	91							
	8:15	7	0	0	0	0	0	7	104	2	8	0	0	0	0	111							
	8:30	4	0	1	0	0	0	5	100	0	7	1	1	0	0	109							
	8:45	10	0	0	0	0	0	10	78	2	4	4	0	1	0	89							
	9:00	12	0	0	0	0	0	12	43	0	3	3	1	0	0	50							
	9:15	9	2	1	0	0	0	12	49	1	6	1	0	0	0	57							
	9:30	4	0	0	0	0	0	4	39	0	4	2	0	0	0	45							
	9:45	4	0	0	0	0	0	4	27	0	2	3	0	0	0	32							
	10:00	2	0	1	0	0	0	3	23	0	2	0	0	0	0	29							
	10:15	4	0	0	0	0	0	4	9	0	2	0	0	0	0	14							
	10:30	3	0	1	0	0	0	4	14	1	1	0	0	0	0	16							
	10:45	3	0	1	0	0	0	4	28	0	2	3	0	0	0	33							
	11:00	1	0	1	0	0	0	2	23	0	3	1	0	0	0	35							
	11:30	3	0	0	0	0	0	3	26	0	4	1	0	0	0	29							
11:45	7	0	0	0	0	0	7	16	0	2	1	0	0	0	19								
12:00	3	0	1	0	0	0	4	22	0	6	2	0	0	0	29								
12:15	2	0	0	0	0	0	3	17	0	6	1	0	0	0	30								
12:30	3	0	0	0	0	0	3	24	0	2	0	0	0	0	24								
12:45	3	0	0	0	0	0	4	21	0	2	2	0	0	0	26								
13:00	4	0	0	0	0	0	4	19	0	2	2	0	0	0	25								
13:15	6	0	0	0	0	0	6	46	0	3	3	0	0	0	24								
13:30	5	0	0	0	0	0	5	31	0	3	0	0	0	0	26								
13:45	9	0	1	0	0	0	10	16	0	4	4	0	0	0	39								
14:00	3	0	0	0	0	0	4	22	2	2	4	0	0	0	30								
14:15	2	0	0	0	0	0	2	46	0	0	0	0	0	0	24								
14:30	3	0	1	0	0	0	4	31	0	1	2	0	0	0	24								
14:45	14	1	0	1	0	0	15	29	1	7	0	0	0	0	33								
15:00	12	0	0	0	0	0	13	30	0	2	4	0	0	0	37								
15:15	1	0	0	0	0	0	1	27	1	4	2	0	0	0	34								
15:30	1	0	1	0	0	0	2	20	0	3	0	0	0	0	24								
15:45	3	0	0	0	0	0	3	21	0	3	1	0	0	0	24								
16:00	13	0	0	0	0	0	13	22	0	2	0	0	0	0	25								
16:15	6	0	0	0	0	0	7	43	0	1	0	0	0	0	26								
16:30	7	0	0	0	0	0	8	37	0	6	0	0	0	0	27								
16:45	5	0	0	0	0	0	6	29	0	4	1	0	0	0	34								
17:00	9	0	1	0	0	0	10	46	0	3	0	0	0	0	49								
17:15	7	0	2	0	0	0	9	56	0	2	1	0	0	0	59								
17:30	6	0	0	0	0	0	8	34	0	4	0	0	0	0	38								
17:45	5	0	0	0	0	0	5	37	0	5	0	0	0	0	42								
18:00	9	1	0	0	0	0	10	30	2	0	0	0	0	0	32								
18:15	4	0	0	0	0	0	4	22	1	4	0	0	0	0	27								
18:30	3	0	1	0	0	0	5	32	0	3	1	0	0	0	36								
18:45	3	0	1	0	0	0	4	27	1	2	0	0	0	0	33								
25:75	245	4	25	2	1	1	2575	193	61	5	4	10	2144										



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 3
Location Owenstown(N) / Owenstown(W) / Moygaddy
Date Tuesday 28 May 2019

Time	C to B - Moygaddy to Owenstown(W)							C to A - Moygaddy to Owenstown(N)							Veh. Total
	CAR	Taxi	LGV	HGV	PSV	M/C	P/C	CAR	Taxi	LGV	HGV	PSV	M/C	P/C	
7:00	9	0	0	0	0	0	15	7	0	0	0	0	0	7	
7:15	10	0	4	2	0	0	16	4	0	1	1	0	0	8	
7:30	18	0	3	0	0	0	22	7	0	1	0	0	0	8	
7:45	26	0	3	1	0	0	30	8	0	3	0	1	0	12	
8:00	25	0	3	2	0	0	30	4	0	1	0	0	0	5	
8:15	42	0	5	3	0	0	50	4	0	0	0	0	0	4	
8:30	45	1	5	1	1	0	53	13	0	1	0	0	0	14	
8:45	50	0	7	2	1	0	60	10	0	3	0	0	0	13	
9:00	44	0	3	4	0	0	53	23	2	1	0	0	0	24	
9:15	32	0	4	1	0	0	37	22	2	1	0	0	0	25	
9:30	27	1	0	0	0	0	29	4	1	0	1	0	0	6	
9:45	15	0	1	4	0	0	20	4	0	1	0	1	0	8	
10:00	14	0	1	2	0	0	17	8	0	0	0	0	0	8	
10:15	13	0	3	0	0	0	16	5	0	3	0	0	0	8	
10:30	12	0	2	3	0	0	18	11	0	2	1	0	0	14	
10:45	24	1	2	2	0	0	30	8	0	0	0	0	0	8	
11:00	13	0	3	1	0	0	17	7	0	2	1	0	0	10	
11:15	20	1	0	1	0	0	22	7	0	3	0	0	0	10	
11:30	29	0	4	3	0	0	36	6	1	1	0	0	0	8	
11:45	34	0	2	3	0	0	39	13	0	2	0	0	0	16	
12:00	36	0	3	2	0	0	41	10	0	0	0	0	0	10	
12:15	29	0	3	2	0	0	34	17	0	1	0	0	0	18	
12:30	22	0	2	2	0	0	28	7	0	3	0	0	0	10	
12:45	21	1	6	2	0	0	31	4	0	2	0	0	0	6	
13:00	24	0	3	1	0	0	28	12	0	3	0	0	0	15	
13:15	22	1	5	2	0	0	30	13	0	3	1	0	0	14	
13:30	31	2	6	1	0	0	41	8	0	2	0	0	0	10	
13:45	33	1	0	1	0	0	35	15	0	2	0	0	0	17	
14:00	32	0	8	0	0	0	40	9	0	3	0	0	0	12	
14:15	33	0	2	3	0	0	38	10	0	2	0	0	0	13	
14:30	35	0	1	0	0	0	36	14	1	1	0	0	0	16	
14:45	64	0	2	4	0	0	70	20	1	6	1	0	0	22	
15:00	43	0	3	2	0	0	48	12	2	1	1	0	0	16	
15:15	38	2	4	1	0	0	45	18	0	2	0	0	0	22	
15:30	56	4	2	1	0	0	60	17	0	1	0	0	0	15	
15:45	51	1	7	0	1	0	64	14	0	1	0	0	0	18	
16:00	63	0	11	3	0	0	79	19	0	3	0	0	0	20	
16:15	66	0	7	3	0	1	77	16	0	4	0	0	0	20	
16:30	83	1	8	2	0	0	95	25	0	5	0	0	0	30	
16:45	84	0	11	0	1	0	96	20	0	2	0	0	0	22	
17:00	85	1	12	2	0	0	101	30	0	6	1	0	0	39	
17:15	90	0	9	1	0	0	100	19	0	3	0	0	0	20	
17:30	96	0	8	1	0	0	105	31	0	4	0	0	0	33	
17:45	93	2	12	0	0	0	108	26	0	1	0	0	0	27	
18:00	94	0	12	2	0	0	109	23	0	5	0	0	0	1	
18:15	97	0	12	1	0	0	110	24	0	2	0	0	0	26	
18:30	56	1	3	1	0	0	62	16	0	2	0	0	0	18	
18:45	58	0	11	1	0	0	70	15	0	5	0	0	1	0	
20:45	2040	21	232	80	4	3	2391	637	B	92	7	6	1	3	
25:75	7584	758	832	264	12	15	8754	2187	218	264	12	15	15	15	

Site No. 3
Location Owenstown(N) / Owenstown(W) / Moygaddy
Date Tuesday 28 May 2019

Time	To Arm C - Moygaddy					From Arm C - Moygaddy					Veh. Total	Veh. Total				
	CAR	Taxi	LGV	PSV	P/C	CAR	Taxi	LGV	PSV	P/C		CAR	Taxi	LGV	PSV	P/C
7:00	93	1	18	2	0	114	16	0	0	0	0	0	0	0	0	22
7:15	111	0	19	3	0	133	14	0	5	3	0	0	0	0	0	22
7:30	137	0	13	1	0	151	25	0	4	0	0	0	0	0	0	30
7:45	109	0	14	2	0	126	34	0	6	1	1	0	0	0	0	42
8:00	107	2	9	0	0	118	27	0	4	2	0	0	0	0	0	35
8:15	123	0	7	3	0	134	46	0	5	3	0	0	0	0	0	54
8:30	123	0	12	2	1	138	58	1	5	1	0	0	0	0	0	67
8:45	97	2	5	4	0	109	60	0	10	2	1	0	0	0	0	73
9:00	64	0	5	3	0	73	67	0	4	5	0	0	0	0	0	77
9:15	85	1	7	1	0	94	54	2	5	1	0	0	0	0	0	62
9:30	69	2	5	3	1	80	31	2	0	1	1	0	0	0	0	36
9:45	47	0	2	4	0	53	19	0	2	4	1	0	0	0	0	26
10:00	38	0	6	3	2	49	22	0	1	2	0	0	0	0	0	25
10:15	17	0	3	3	0	23	16	0	6	0	0	0	0	0	0	24
10:30	19	1	1	1	0	22	23	0	4	4	0	0	0	0	0	32
10:45	40	0	3	3	0	46	32	1	2	2	0	0	0	0	0	37
11:00	40	0	8	1	0	50	70	0	5	2	0	0	0	0	0	38
11:15	34	0	4	1	0	40	27	1	3	1	0	0	0	0	0	27
11:30	21	0	3	1	0	25	35	1	5	3	0	0	0	0	0	44
11:45	39	2	2	1	0	44	47	0	4	3	0	0	0	0	0	55
12:00	31	0	7	2	0	40	46	0	3	2	0	0	0	0	0	51
12:15	26	0	6	2	0	34	46	0	4	2	0	0	0	0	0	52
12:30	34	0	3	0	0	37	29	0	5	2	0	0	0	0	0	38
12:45	31	0	3	2	0	36	25	1	5	2	0	0	0	0	0	37
13:00	29	0	4	2	0	35	35	0	5	1	0	0	0	0	0	45
13:15	26	0	1	3	0	30	35	1	5	3	0	0	0	0	0	44
13:30	38	0	5	4	0	47	39	2	8	1	0	0	0	0	0	51
13:45	26	0	5	0	0	34	48	1	2	1	0	0	0	0	0	52
14:00	38	2	3	4	0	48	41	0	11	0	0	0	0	0	0	52
14:15	53	0	0	0	0	53	43	0	4	3	0	0	0	0	0	51
14:30	38	0	2	2	0	42	49	1	1	1	0	0	0	0	0	52
14:45	35	1	2	0	0	39	64	1	2	4	1	0	0	0	0	92
15:00	48	0	8	0	0	56	55	2	4	3	0	0	0	0	0	64
15:15	53	1	4	2	0	60	56	4	6	1	2	0	0	0	0	67
15:30	33	1	4	2	0	40	70	4	3	1	0	0	0	0	0	79
15:45	36	0	4	0	0	42	68	1	8	0	0	0	0	0	0	78
16:00	40	0	5	0	0	45	62	0	14	3	0	0	0	0	0	99
16:15	63	0	4	0	0	69	62	0	11	0	0	0	0	0	0	97
16:30	54	0	8	0	0	63	108	1	13	2	0	0	0	0	0	125
16:45	39	0	6	1	0	46	104	0	13	0	1	0	0	0	0	118
17:00	53	0	4	0	0	59	115	1	18	3	0	0	0	0	0	138
17:15	66	0	3	1	0	70	109	0	12	1	0	0	0	0	0	122
17:30	47	0	5	0	0	52	127	0	12	1	0	0	0	0	0	140
17:45	42	0	6	0	0	48	119	2	13	0	0	0	0	0	0	135
18:00	40	2	2	0	0	44	118	0	17	2	0	0	0	0	0	138
18:15	34	1	7	0	0	42	121	0	14	1	0	0	0	0	0	136
18:30	46	0	5	1	0	52	72	1	5	1	0	0	0	0	0	80
18:45	39	1	2	0	0	45	73	0	16	1	0	0	0	0	0	91
25:75	2551	20	264	70	10	2929	2677	29	324	87	10	4	14	4	14	3145

CAR TAXI LGV HGV PSV M/C P/C
1 1 1 2.3 2 0.4 0.2

Site No. 3
Location Owenstown(N) / Owenstown(W) / Moygaddy
Date Tuesday 28 May 2019

Time	A to B - Owenstown(N) to Moygaddy							A to B - Owenstown(N) to Owenstown(W)							Veh. Total
	CAR	Taxi	LGV	PSV	M/C	P/C		CAR	Taxi	LGV	PSV	M/C	P/C		
7:00	19	0	0	0	0	0	20	2	0	2	0	0	0	4	
7:15	23	0	5	2,3	0	0	30,3	4	0	2	0	0	0	6	
7:30	30	0	5	0	0	0	35	6	0	0	0	0	0	8	
7:45	25	0	4	0	0	0	29	4	0	0	2,3	0	0	6,3	
8:00	26	0	1	0	0	0	27	7	0	2	0	0	0	9	
8:15	19	0	4	0	0	0	23	5	0	2	0	0	0	7	
8:30	23	0	5	2,3	0	0	30,3	6	0	1	0	0	0	7	
8:45	19	0	1	0	0	0	20	8	0	0	0	0	0	8	
9:00	21	0	2	0	0	0	23	11	0	1	0	0	0	12	
9:15	36	0	1	0	0	0	37,3	12	0	0	2,3	0	0	14,3	
9:30	30	2	1	2,3	0	0	37,3	7	2	0	0	0	0	9	
9:45	20	0	0	2,3	4	0	22,3	5	0	0	0	0	0	5	
10:00	15	0	2	2,3	0	0	23,3	2	0	1	0	0	0	3	
10:15	8	0	1	0	0	0	9	4	0	1	2,3	0	0	7,3	
10:30	5	0	0	2,3	0	0	14	5	0	3	2,3	0	0	10,3	
10:45	12	0	1	0	0	0	13	4	0	0	0	0	0	1	
11:00	11	0	3	0	0	0	14	5	0	3	2,3	0	0	10,3	
11:15	1	0	0	0	0	0	11	3	0	2	0	0	0	5	
11:30	5	0	1	0	0	0	6	9	0	1	0	0	0	10	
11:45	13	1	0	2,3	0	0	16,3	7	0	1	0	0	0	8	
12:00	9	0	1	0	0	0	10	4	0	1	0	0	0	4	
12:15	9	0	0	2,3	0	0	11,3	1	0	1	0	0	0	2	
12:30	10	0	1	0	0	0	11	4	0	0	0	0	0	4	
12:45	10	0	1	0	0	0	11	4	0	0	0	0	0	1	
13:00	10	0	1	0	0	0	11	3	0	0	0	0	0	3	
13:15	4	0	0	0	0	0	4	5	0	0	0	0	0	3	
13:30	7	0	1	0	0	0	8	3	0	2	0	0	0	5	
13:45	10	0	2	0	0	0	12	1	0	2	0	0	0	8	
14:00	16	0	1	0	0	0	17	8	0	0	0	0	0	3	
14:15	7	0	0	0	0	0	7	3	0	0	0	0	0	8	
14:30	7	0	1	0	0	0	8	2	0	1	0	0	0	3,2	
14:45	6	0	0	0	0	0	6	2	0	0	0	0	0	3	
15:00	18	0	1	0	0	0	19	13	0	0	0	0	0	2	
15:15	26	0	0	0	0	0	26	11	2	1	0	0	0	13	
15:30	13	1	1	2,3	0	0	17,3	6	0	0	0	0	0	14	
15:45	15	0	1	0	0	0	20	8	0	0	0	0	0	6	
16:00	18	0	3	0	0	0	21	5	0	1	0	0	0	8	
16:15	20	0	3	0	0	0	23	4	0	0	2,3	0	0	6	
16:30	17	0	2	0	0	0	19	1	0	1	2,3	0	0	4,3	
16:45	10	0	2	0	0	0	12	8	0	2	0	0	0	10	
17:00	7	0	1	0	0	0	8	6	0	1	0	0	0	7	
17:15	10	0	1	0	0	0	11	5	0	1	0	0	0	6	
17:30	13	0	1	0	0	0	14	8	0	0	0	0	0	8	
17:45	5	0	1	0	0	0	6	7	0	0	0	0	0	7	
18:00	10	0	2	0	0	0	12	5	0	3	0	0	0	8	
18:15	12	0	3	0	0	0	15	3	1	0	0	0	0	4	
18:30	14	0	2	0	0	0	16	3	0	1	0	0	0	8	
18:45	12	0	2	0	0	0	12	8	0	0	0	0	0	4	
Total	694	4	71	20,7	10	0	807	250	5	39	13,8	0	0	0,2	358

CAR TAXI LGV HGV PSV M/C P/C
1 1 1 2.3 2 0.4 0.2



Site No. 3
Location Owenstown(N) / Owenstown(W) / Moygaddy
Date Tuesday 28 May 2019

Time	B to A - Owenstown(W) to Owenstown(N)				B to C - Owenstown(W) to Moygaddy				Veh. Total
	CAR	Tot	LGW	HGV	PSV	M/C	P/C		
7:00	2	0	0	0	0	0	0	2	0
7:15	3	0	1	0	0	0	0	4	0
7:30	2	0	1	0	0	0	0	3	0
7:45	2	0	1	0	0	0	0	3	0
8:00	5	0	1	0	0	0	0	6	0
8:15	7	0	0	0	0	0	0	7	0
8:30	4	0	1	0	0	0	0	5	0
8:45	10	0	0	0	0	0	0	10	0
9:00	12	0	0	0	0	0	0	12	0
9:15	9	2	1	0	0	0	0	12	49
9:30	4	0	0	0	0	0	0	4	39
9:45	4	0	0	0	0	0	0	4	27
10:00	2	0	1	0	0	0	0	3	23
10:15	4	0	0	0	0	0	0	4	9
10:30	3	0	1	0	0	0	0	4	14
10:45	3	0	1	0	0	0	0	4	28
11:00	1	0	1	0	0	0	0	2	29
11:15	7	0	1	0	0	0	0	8	23
11:30	3	0	0	0	0	0	0	3	16
11:45	7	0	0	0	0	0	0	7	26
12:00	3	0	1	0	0	0	0	4	22
12:15	2	0	0	0	0	0	0.2	2.2	17
12:30	3	0	0	0	0	0	0	3	24
12:45	3	0	0	0	0	0	0.2	3.2	21
13:00	4	0	0	0	0	0	0	4	19
13:15	6	0	0	0	0	0	0	6	22
13:30	5	0	0	0	0	0	0	5	31
13:45	9	0	1	0	0	0	0	10	16
14:00	3	0	0	2.3	0	0	0	5.3	22
14:15	2	0	0	0	0	0	0	2	46
14:30	3	0	1	0	0	0	0	4	31
14:45	14	1	0	2.3	0	0	0	17.3	29
15:00	12	0	1	0	0	0	0	13	30
15:15	1	0	0	0	0	0	0	1	27
15:30	1	0	1	0	0	0	0	2	20
15:45	3	0	0	0	0	0	0	3	21
16:00	13	0	0	0	0	0	0	13	22
16:15	6	0	0	0	2	0	0	8	43
16:30	7	0	1	0	0	0	0	8	37
16:45	5	0	1	0	0	0	0	6	29
17:00	9	0	1	0	0	0	0	10	46
17:15	7	0	2	0	0	0	0	9	56
17:30	6	0	2	0	0	0	0	8	34
17:45	5	0	0	0	0	0	0	5	37
18:00	9	1	0	0	0	0	0	10	30
18:15	4	0	0	0	0	0	0	4	22
18:30	3	0	1	0	0	0	0.2	4.2	32
18:45	3	0	1	0	0	0	0	4	27
25:75	245	4	25	4.6	2	0	0.6	281.2	1855
									16
									193
									140.3
									10
									1.6
									2
									2217.9



Site No. 3
Location Owenstown(N) / Owenstown(W) / Moygaddy
Date Tuesday 28 May 2019

Time	C to A - Moygaddy to Owenstown(W)							C to A - Moygaddy to Owenstown(N)						
	CAR	Tot	LCV	HGV	PSV	M/C	P/C	CAR	Tot	LCV	HGV	PSV	M/C	P/C
7:00	9	0	5	2.3	0	0	0	7	0	0	0	0	0	0
7:15	10	0	4	4.6	0	0	0	4	0	1	2.3	0	0	0
7:30	18	0	3	0	0	0	0.2	7	0	1	0	0	0	0
7:45	26	0	3	2.3	0	0	0	8	0	3	0	2	0	0
8:00	25	0	3	4.6	0	0	0	4	0	1	0	0	0	0
8:15	42	0	5	6.9	0	0	0	32.6	4	0	0	0	0	0
8:30	45	1	5	2.3	2	0	0	4	0	0	0	0	0	0
8:45	50	0	7	4.6	2	0	0	53.9	13	0	1	0	0	0
9:00	44	0	3	13.8	0	0	0	63.6	10	3	0	0	0	0
9:15	32	0	4	2.3	0	0	0	60.8	23	0	1	0	0	0
9:30	27	1	0	0	0	0	0.2	38.3	22	2	1	0	0	0
9:45	15	0	1	9.2	0	0	0	28.2	4	1	0	2.3	2	0
10:00	14	0	1	4.6	0	0	0	25.2	4	0	1	0	2	0
10:15	13	0	3	0	0	0	0	19.6	8	0	0	0	0	0
10:30	12	0	2	6.9	0	0	0.2	5	0	3	0	0	0	0
10:45	24	1	2	4.6	0	0	0.2	11	0	2	2.3	0	0	0
11:00	13	0	3	2.3	0	0	0	8	0	0	0	0	0	0
11:15	20	1	0	2.3	0	0	0	18.3	7	0	2	2.3	0	0
11:30	29	0	4	6.9	0	0	0	23.3	7	0	3	0	0	0
11:45	34	0	2	6.9	0	0	0	39.9	6	1	1	0	0	0
12:00	36	0	3	4.6	0	0	0	42.9	13	0	2	0	0	0
12:15	29	0	3	4.6	0	0	0	43.6	10	0	0	0	0	0
12:30	22	0	2	4.6	0	0	0.4	36.6	17	0	1	0	0	0
12:45	21	1	6	4.6	0	0	0.2	29	7	0	3	0	0	0
13:00	24	0	3	2.3	0	0	0	32.8	4	0	2	0	0	0
13:15	22	1	5	4.6	0	0	0	29.3	12	0	3	0	0	0
13:30	31	2	6	2.3	0	0.4	0	32.6	13	0	0	2.3	0	0
13:45	33	1	0	2.3	0	0	0	41.7	8	0	2	0	0	0
14:00	32	0	8	0	0	0	0	36.3	15	0	2	0	0	0
14:15	33	0	2	6.9	0	0	0	40	9	0	3	0	0	0
14:30	35	0	0	2.3	0	0	0	41.9	10	0	2	0	0	0.2
14:45	64	0	2	9.2	0	0	0	37.3	14	1	1	0	0	0
15:00	43	0	3	4.6	0	0	0	75.2	20	1	0	2	0	0
15:15	38	2	4	2.3	0	0	0	50.6	12	2	1	2.3	0	0
15:30	56	4	2	2.3	0	0	0.2	46.3	18	0	2	0	4	0
15:45	51	1	7	0	2	0	0	64.5	14	0	1	0	0	0
16:00	65	0	11	6.9	0	0	0	61	17	0	1	0	0	0
16:15	66	0	7	6.9	0	0.4	0	82.9	17	0	3	0	0	0
16:30	83	1	8	4.6	0	0.4	0	80.3	16	0	4	0	0	0
16:45	84	0	11	0	2	0	0	97	25	0	5	0	0	0
17:00	85	1	12	4.6	0	0	0.2	97	20	0	2	0	0	0
17:15	90	0	9	2.3	0	0	0	102.8	30	0	6	2.3	0	0
17:30	96	0	8	2.3	0	0	0	101.3	19	0	3	0	0	0
17:45	93	2	12	0	0	0	0.2	106.3	31	0	4	0	0	0
18:00	95	0	12	4.6	0	0	0	107.2	26	0	1	0	0	0
18:15	97	0	12	2.3	0	0	0	111.6	23	0	5	0	0	0.2
18:30	56	1	3	2.3	0	0	0.2	111.3	24	0	2	0	0	0
18:45	58	0	11	2.3	0	0	0	62.5	16	0	2	0	0	0
25:75	2040	21	232	184	8	1.2	2.2	71.3	15	0	5	0	0.4	0.6
25:75	1631	8	12	0.4	0.6	0.4	0.6	20.4	5	0	0	0	0	0

Site No.

3

Owenstown(N) / Owenstown(W) / Moygaddy

Tuesday, 28 May 2019

Date

28 May 2019

Time	To Arm B - Owenstown(W)				To Arm B - Owenstown(W)				To Arm B - Owenstown(W)				Veh. Total			
	CAR	Tot	IGV	HGV	PSV	M/C	P/C	Total	CAR	Tot	IGV	HGV		PSV	M/C	P/C
7:00	11	7	7	2.3	0	0	0	20.3	76	1	17	4.4	0	0	0	98.6
7:15	14	0	6	4.6	0	0	0	24.6	91	0	15	4.6	0	0	0	110.6
7:30	24	0	5	0	0	0	0.2	29.2	109	0	9	2.3	0	0	0	120.3
7:45	30	0	3	4.6	0	0	0	37.6	86	0	11	4.6	0	0	0.2	101.8
8:00	32	0	5	4.6	0	0	0	41.8	86	2	9	0	0	0	0	97
8:15	47	0	7	6.9	0	0	0	60.9	111	0	3	6.9	0	0	0	121.1
8:30	51	1	6	2.3	2	0	0	62.3	104	0	8	2.3	2	0	0	116.3
8:45	58	0	7	4.6	2	0	0	71.6	88	2	4	9.2	0	0.4	0	103.6
9:00	55	0	4	13.8	0	0	0	72.8	55	0	3	6.9	2	0	0	88.9
9:15	44	0	4	4.6	0	0	0	52.6	58	3	7	2.3	0	0	0	70.3
9:30	34	3	0	0	0	0	0.2	37.2	43	0	4	4.6	0	0	0	51.6
9:45	20	0	1	9.2	0	0	0	30.2	31	0	2	6.9	0	0	0	39.9
10:00	16	0	2	4.6	0	0	0	22.6	25	0	5	4.6	0	0	0	34.6
10:15	17	0	4	2.3	0	0	0	23.3	13	0	2	6.9	0	0	0	21.9
10:30	16	0	3	6.9	0	0	0.2	26.1	17	1	2	0	0	0	0	20
10:45	25	1	2	4.6	0	0	0.2	32.6	31	0	3	6.9	0	0	0	40.9
11:00	18	0	6	4.6	0	0	0	28.6	30	0	6	2.3	0	0	0	38.5
11:15	23	1	2	2.3	0	0	0	26.3	30	0	5	2.3	0	0	0.2	37.5
11:30	38	0	5	6.9	0	0	0	49	19	0	2	2.3	0	0	0	23.3
11:45	41	0	3	6.9	0	0	0	50.9	33	1	2	0	0	0	0	36
12:00	40	0	3	4.6	0	0	0	47.8	25	0	7	4.6	0	0	0	35.6
12:15	30	0	4	4.6	0	0	0	38.6	19	0	6	2.3	0	0	0	27.5
12:30	26	0	2	4.6	0	0	0.4	33	27	0	2	0	0	0	0	29
12:45	22	1	6	4.6	0	0	0.2	33.8	24	0	2	4.6	0	0	0.2	30.8
13:00	27	1	5	4.6	0	0	0	32.3	23	0	3	4.6	0	0	0	36.3
13:15	27	0	3	2.3	0	0	0	37.6	28	0	1	6.9	0	0	0	35.9
13:30	34	2	8	2.3	0	0.4	0	46.7	36	0	4	9.2	0	0	0	49.2
13:45	34	1	2	2.3	0	0	0	39.3	25	0	4	0	0	1.2	0	30.2
14:00	40	0	8	0	0	0	0	48	25	2	2	1.5	0	0	0.2	40.7
14:15	36	0	2	6.9	0	0	0.2	45.1	48	0	0	0	0	0	0	48
14:30	37	0	1	2.3	0	0	0	40.3	34	0	2	4.6	0	0	0	40.6
14:45	66	0	2	9.2	0	0	0	77.2	43	2	2	2.3	2	0	0	51.3
15:00	56	0	3	4.6	0	0	0	63.6	42	0	8	0	0	0	0	50
15:15	49	4	5	2.3	0	0	0	60.3	28	1	4	4.6	0	0	0	37.6
15:30	62	4	2	2.3	0	0	0.2	70.5	28	0	4	2.3	0	0	0	27.6
15:45	59	1	7	0	2	0	0	69	24	0	3	0	0	0	0	27
16:00	70	0	12	6.9	0	0	0	88.9	35	0	2	0	0	0	0.2	37.2
16:15	74	0	7	9.2	0	0.4	0	86.6	49	0	1	0	2	0	0	52.4
16:30	84	1	9	6.9	0	0.4	0	101.3	44	0	7	0	0	0	0.2	51.3
16:45	92	0	13	0	2	0	0	107	34	0	5	2.3	0	0	0	41.3
17:00	91	1	13	4.6	0	0	0.2	109.8	55	0	4	0	0	0	0	39
17:15	95	0	10	2.3	0	0	0	107.3	63	0	4	2.3	0	0	0	69.3
17:30	104	0	8	2.3	0	0	0	114.3	40	0	6	0	0	0	0	46
17:45	100	2	12	0	0	0	0.2	114.2	42	0	5	0	0	0	0	47
18:00	100	0	15	4.6	0	0	0	119.6	39	3	0	0	0	0	0	42
18:15	100	1	12	2.3	0	0	0	115.3	26	1	4	0	0	0	0	31
18:30	59	1	4	2.3	0	0	0.2	64.5	35	0	4	2.3	0	0	0.2	41.5
18:45	66	0	1	2.3	0	0	0	79.3	30	1	3	0	4	0	0	38.2
25:75	2290	26	271	197.8	6	1.2	2.4	2786.4	2100	20	218	144.9	10	1.6	2.6	2499



Site No. 3
Location Owenstown(N) / Owenstown(W) / Moygaddy
Date Tuesday 28 May 2019

Time	To Arm C - Moygashy					From Arm C - Moygashy					Veh.			
	CAR	Total	GV	HGV	PSV	CAR	Total	GV	HGV	PSV				
7:00	93	1	18	4.6	0	16	0	5	2.3	0	23.3			
7:15	111	0	19	6.9	0	136.9	14	0	5	6.9	0	25.9		
7:30	137	0	13	2.3	0	152.3	25	0	4	0	0	29.2		
7:45	109	0	14	4.6	0	127.8	34	0	6	2.3	2	44.3		
8:00	107	2	9	0	0	118	29	0	4	4.6	0	37.6		
8:15	123	0	7	6.9	0	137.1	46	0	5	6.9	0	57.9		
8:30	123	0	12	4.6	2	141.6	58	1	6	2.3	2	69.3		
8:45	97	2	5	9.2	0	113.6	60	0	10	4.6	2	76.6		
9:00	64	0	5	6.9	2	77.9	67	0	4	13.8	0	84.8		
9:15	85	1	7	2.3	0	95.3	54	2	5	2.3	0	63.3		
9:30	69	2	5	6.9	2	84.9	31	2	0	2.3	2	37.5		
9:45	47	0	2	9.2	0	58.2	19	0	2	9.2	2	32.2		
10:00	38	0	6	6.9	4	54.9	22	0	1	4.6	0	27.6		
10:15	17	0	3	6.9	0	26.9	18	0	6	0	0	24		
10:30	19	1	1	2.3	0	23.3	23	0	4	9.2	0	36.4		
10:45	40	0	3	6.9	0	49.9	32	1	2	4.6	0	39.8		
11:00	40	0	8	2.3	0	50.5	20	0	5	4.6	0	29.6		
11:15	34	0	4	2.3	0	40.5	27	1	3	2.3	0	33.3		
11:30	21	0	3	2.3	0	26.3	35	1	5	6.9	0	47.9		
11:45	39	2	2	2.3	0	45.3	47	0	4	6.9	0	58.1		
12:00	31	0	7	4.6	0	42.6	46	0	3	4.6	0	53.6		
12:15	26	0	6	4.6	0	36.6	46	0	4	4.6	0	54.6		
12:30	34	0	3	0	0	37	29	0	5	4.6	0	39		
12:45	31	0	3	4.6	0	38.6	25	1	8	2.3	0	36.8		
13:00	29	0	4	4.6	0	37.6	36	0	6	4.6	0	44.3		
13:15	26	0	1	6.9	0	33.9	35	1	5	6.9	0	47.9		
13:30	38	0	5	9.2	0	52.2	39	2	8	2.3	0	51.7		
13:45	26	0	5	0	1.2	32.2	48	1	2	2.3	0	53.3		
14:00	38	2	3	9.2	0	52.4	41	0	11	0	0	52		
14:15	53	0	0	0	0	53	43	0	4	6.9	0	54.1		
14:30	38	0	2	4.6	0	44.6	49	1	1	2.3	0	53.3		
14:45	35	1	2	0	0	40	84	1	2	9.2	2	98.2		
15:00	48	0	8	0	0	56	55	2	4	6.9	0	67.9		
15:15	53	1	4	4.6	0	62.6	56	2	6	2.3	4	70.3		
15:30	33	1	4	4.6	0	42.6	70	4	3	2.3	0	79.5		
15:45	36	0	4	0	0	44	68	1	8	0	2	79		
16:00	40	0	5	0	0.2	45.2	82	0	14	6.9	0	102.9		
16:15	63	0	4	0	0.4	67.4	82	0	11	6.9	0	100.3		
16:30	54	0	8	0	0	62.2	108	1	13	4.6	0	127		
16:45	39	0	6	2.3	0	47.3	104	0	13	0	2	0	119	
17:00	53	0	4	0	0	57	115	1	18	6.9	0	0	123.3	
17:15	66	0	3	2.3	0	71.3	109	0	12	2.3	0	0	141.1	
17:30	47	0	5	0	0	52	127	0	12	2.3	0	0	123.3	
17:45	42	0	6	0	0	48	119	2	13	0	0	0	141.3	
18:00	40	2	2	0	0	44	118	0	17	4.6	0	0	139.6	
18:15	34	1	7	0	0	42	121	0	14	2.3	0	0	137.3	
18:30	46	0	5	2.3	0	53.3	72	1	5	2.3	0	0	80.5	
18:45	39	1	2	0	0	46.2	73	0	16	2.3	0	0	91.7	
25:75	2551	20	264	161	20	3247.6	2677	29	324	200.1	20	1.6	2.8	3242.5



Site No. 4
Location R157(N) / Moygaddy / R157(S)
Date Tuesday 28 May 2019

Time	A to C - R157(N) to R157(S)					A to B - R157(N) to Moygaddy					Veh. Total					
	CAR	Tot	LGV	HGV	P/V	M/C	P/C	M/C	P/V	A/C		Tot	LGV	HGV	P/V	M/C
7:00	23	0	6	1	0	0	0	0	0	30	6	0	4	0	0	0
7:15	28	0	13	3	0	0	0	0	0	44	10	0	3	2	0	0
7:30	33	0	9	2	0	0	0	0	0	44	14	0	2	0	0	1
7:45	30	1	4	1	0	0	0	0	0	36	23	0	1	0	0	0
8:00	37	0	5	3	0	0	0	0	0	45	17	0	2	3	0	0
8:15	26	1	7	2	0	0	0	0	0	36	35	0	5	1	0	0
8:30	35	0	4	3	0	0	0	0	0	42	35	0	1	0	1	0
8:45	32	1	3	4	0	0	0	0	0	40	27	0	5	1	1	0
9:00	22	0	2	2	1	0	0	0	0	27	29	0	1	2	0	0
9:15	18	0	0	1	0	0	0	0	0	19	42	0	1	0	0	0
9:30	19	0	4	7	3	0	0	0	0	33	21	1	1	0	0	1
9:45	27	0	3	4	0	0	0	0	0	34	11	0	0	4	0	0
10:00	11	0	3	2	0	0	0	0	0	16	11	0	0	0	0	0
10:15	29	0	4	4	0	0	0	0	0	37	12	1	0	0	0	0
10:30	14	0	4	1	0	0	0	0	0	19	9	0	1	1	0	0
10:45	29	0	2	1	0	0	0	0	0	32	15	1	3	2	0	0
11:00	25	0	1	2	0	0	0	0	0	28	10	0	2	2	0	0
11:15	28	0	3	4	0	0	0	0	0	35	11	0	0	1	0	0
11:30	24	0	2	2	1	0	0	0	0	29	19	0	3	2	0	0
11:45	20	1	5	0	0	0	0	0	0	26	23	0	3	2	0	0
12:00	19	0	4	1	0	0	0	0	0	24	14	0	2	2	0	0
12:15	20	0	2	2	0	0	0	0	0	24	22	0	2	0	0	0
12:30	30	0	4	3	0	0	0	0	0	37	9	0	1	0	0	0
12:45	16	0	1	2	0	0	1	0	0	20	9	0	4	2	0	0
13:00	24	0	2	0	0	0	0	0	0	26	12	0	3	1	0	0
13:15	28	0	6	0	0	0	0	0	0	34	10	0	4	1	0	0
13:30	25	0	3	4	0	0	0	0	0	32	16	1	4	0	0	0
13:45	27	0	4	1	0	0	0	0	0	32	21	1	1	1	0	0
14:00	25	0	3	3	1	0	0	0	0	32	14	0	5	0	0	0
14:15	28	0	7	3	0	0	0	0	1	39	18	0	2	1	0	0
14:30	32	0	2	4	0	0	0	0	0	38	24	0	0	0	0	0
14:45	26	0	2	0	0	0	0	0	0	29	29	0	1	3	0	0
15:00	31	0	0	3	0	0	0	0	0	34	15	1	1	0	0	0
15:15	28	0	5	2	0	0	0	0	0	35	28	1	2	0	0	0
15:30	28	0	3	2	0	0	0	0	0	33	36	2	2	0	1	0
15:45	46	0	6	1	0	0	0	0	0	53	29	1	1	0	0	0
16:00	43	0	12	6	0	0	0	0	0	62	37	0	7	3	0	0
16:15	47	0	8	1	0	0	0	0	0	56	42	0	6	2	0	1
16:30	59	1	10	0	0	0	0	0	0	71	48	1	3	2	0	0
16:45	71	0	7	0	0	0	0	0	0	78	51	0	10	0	1	0
17:00	52	0	15	1	0	0	0	0	0	69	48	1	5	1	0	0
17:15	74	0	14	1	0	0	0	0	0	90	50	0	7	0	0	0
17:30	84	0	11	1	1	0	0	0	0	97	61	0	4	0	0	0
17:45	80	1	5	0	0	0	0	0	0	86	56	2	10	0	0	0
18:00	53	1	14	1	0	0	0	0	0	69	51	0	5	1	0	0
18:15	54	0	3	3	0	0	0	0	0	60	58	0	8	0	0	0
18:30	50	0	2	0	0	0	0	0	0	53	34	1	2	0	0	0
18:45	44	0	3	0	0	0	0	0	0	48	39	0	11	0	0	0
Total	1654	7	242	94	7	7	7	7	2	2013	1261	15	153	47	4	2
															8	1490



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 4
Location R157(N) / Moygaddy / R157(S)
Date Tuesday 28 May 2019

Time	S to A - Moygaddy to R157(N)					S to C - Moygaddy to R157(S)					Veh.				
	CAR	Total	LGW	HGV	P/SV	M/C	P/C	Total	CAR	Total	LGW	HGV	P/SV	M/C	P/C
7:00	57	0	11	2	0	0	0	70	35	0	5	0	0	0	39
7:15	63	0	14	2	0	0	0	79	40	1	5	0	0	0	50
7:30	72	0	6	2	0	0	0	82	41	0	7	0	0	0	48
7:45	76	0	7	0	0	0	0	83	43	0	5	0	0	0	49
8:00	72	1	10	1	0	0	1	85	53	0	3	0	0	0	56
8:15	71	0	3	3	0	0	1	78	41	0	2	0	0	0	43
8:30	48	0	5	1	1	0	0	55	59	0	7	1	0	0	67
8:45	45	1	2	0	0	1	0	49	72	0	3	2	0	0	77
9:00	41	0	3	3	1	0	0	48	29	1	3	0	0	0	34
9:15	39	1	3	2	0	0	0	47	40	0	1	0	0	0	41
9:30	32	1	1	2	0	0	0	36	42	2	4	1	0	0	50
9:45	22	1	2	0	0	0	0	26	22	0	2	1	0	0	27
10:00	14	0	3	3	0	0	0	20	22	0	2	1	0	0	20
10:15	5	0	2	2	0	0	0	9	16	0	3	1	0	0	9
10:30	10	1	2	0	0	0	0	13	8	1	0	0	0	0	20
10:45	18	0	2	2	0	0	0	22	19	0	2	0	0	0	21
11:00	18	0	2	1	0	0	0	21	18	0	6	1	0	0	25
11:15	20	0	2	1	0	0	0	24	18	0	2	0	0	0	20
11:30	13	0	1	0	0	0	0	14	8	0	2	0	0	0	10
11:45	13	0	2	1	0	0	0	16	24	2	0	0	0	0	27
12:00	19	0	4	1	0	0	0	24	15	0	2	1	0	0	18
12:15	13	1	2	0	0	0	0	16	7	0	5	2	0	0	14
12:30	12	1	0	0	0	0	0	13	22	0	2	0	0	0	24
12:45	15	0	1	0	0	0	0	16	17	0	2	1	0	0	20
13:00	14	0	3	1	0	0	0	18	10	0	1	0	0	0	13
13:15	15	0	1	2	0	0	0	18	10	0	1	0	0	0	11
13:30	18	0	3	4	0	0	0	25	19	0	2	1	0	0	22
13:45	11	0	3	0	0	3	0	17	9	0	2	0	0	0	11
14:00	14	2	2	2	0	0	0	21	23	0	2	2	0	0	27
14:15	34	0	0	0	0	0	1	34	23	0	0	0	0	0	23
14:30	19	0	0	1	0	0	0	20	19	0	2	1	0	0	22
14:45	15	0	1	0	2	0	0	18	17	1	1	0	0	0	19
15:00	17	0	4	0	0	0	0	21	22	0	2	1	0	0	25
15:15	32	0	3	1	0	0	0	36	28	2	1	0	0	0	32
15:30	18	0	2	0	0	0	0	20	11	1	2	0	0	0	15
15:45	11	0	1	0	0	0	0	12	27	0	2	0	2	0	31
16:00	14	0	5	0	0	0	0	19	27	0	1	0	0	0	29
16:15	37	0	1	0	0	0	2	40	25	0	4	0	0	0	29
16:30	28	0	5	0	0	0	1	34	24	0	3	0	0	0	27
16:45	21	0	4	0	0	0	0	25	20	0	2	1	0	0	23
17:00	42	0	2	0	0	0	0	44	10	0	2	0	0	0	12
17:15	34	0	3	1	0	0	0	38	20	0	3	0	0	0	23
17:30	39	0	3	0	0	0	0	42	17	0	4	0	0	0	21
17:45	23	0	6	0	0	0	0	29	19	0	1	0	0	0	20
18:00	20	2	1	0	0	0	0	23	17	0	1	0	0	0	18
18:15	17	0	2	0	0	0	0	19	16	1	5	0	0	0	22
18:30	21	0	1	1	0	0	0	23	23	0	3	0	0	0	26
18:45	21	0	1	0	2	0	1	25	19	0	1	0	0	0	20
25:75	1343	12	149	44	6	4	9	1567	1170	12	121	25	5	0	2
25:75	1388	13	177	58	6	1	6	1629	1674	14	217	109	5	5	13



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 4
Location R157(N) / Moygaddy / R157(S)
Date Tuesday 28 May 2019

Time	C to E - R157(S) to Moygaddy					Veh.					C to A - R157(S) to R157(N)				
	CAR	Total	LGW	HGV	P/SV	M/C	P/C	Total	CAR	Total	LGW	HGV	P/SV	M/C	P/C
7:00	12	0	1	1	0	0	0	14	59	0	16	0	1	0	76
7:15	4	0	2	1	0	0	0	7	74	0	6	0	1	0	82
7:30	10	0	3	0	0	0	0	13	97	0	14	5	0	3	118
7:45	12	0	4	1	0	0	0	18	106	0	13	4	0	0	123
8:00	9	0	1	1	0	0	0	10	75	0	8	6	0	0	89
8:15	13	0	0	1	0	0	0	14	74	0	3	9	0	0	86
8:30	23	1	5	1	0	0	0	30	69	1	7	2	0	0	79
8:45	33	0	5	1	0	0	0	39	48	1	3	7	0	0	60
9:00	37	0	3	4	0	0	0	44	36	0	6	4	0	0	47
9:15	12	2	4	1	0	0	0	19	40	0	3	1	0	0	44
9:30	9	1	0	1	0	0	0	12	25	1	3	0	0	0	29
9:45	8	0	2	0	1	0	0	11	20	0	0	2	0	0	29
10:00	11	0	0	0	0	0	0	11	27	0	4	2	0	0	28
10:15	8	0	7	0	0	0	0	15	24	0	3	2	0	0	30
10:30	16	0	2	2	0	0	0	20	19	0	7	2	0	0	28
10:45	14	0	0	0	0	0	0	14	16	0	5	1	0	0	22
11:00	10	0	3	0	0	0	0	13	14	0	3	3	0	0	20
11:15	17	0	3	0	0	0	0	20	24	0	3	2	0	0	35
11:30	18	1	2	1	0	0	1	23	14	0	3	3	0	0	31
11:45	20	0	3	1	0	0	0	24	23	0	1	2	0	0	26
12:00	30	0	3	2	0	0	0	35	34	0	3	1	0	0	41
12:15	23	0	3	0	0	0	0	26	23	0	3	4	0	0	30
12:30	18	0	5	1	0	0	0	24	25	1	3	4	0	0	33
12:45	16	1	3	0	0	0	0	20	21	0	0	4	0	0	26
13:00	20	0	4	1	0	0	0	25	26	0	2	4	0	0	32
13:15	28	0	3	1	0	0	0	30	27	1	3	4	0	0	35
13:30	21	1	3	1	0	0	0	26	23	0	3	3	0	0	31
13:45	24	0	2	0	0	0	0	26	23	0	3	3	0	0	33
14:00	27	0	5	0	0	0	0	32	29	0	5	1	0	0	39
14:15	24	0	5	0	0	0	0	29	16	0	4	1	0	0	21
14:30	26	1	1	1	0	0	0	29	22	1	2	0	0	0	25
14:45	60	1	1	3	1	0	0	66	28	0	2	2	0	0	32
15:00	33	1	3	1	0	0	0	38	29	0	3	1	0	0	33
15:15	29	1	4	1	2	0	0	37	22	0	4	4	0	0	31
15:30	34	2	3	1	0	0	0	40	33	1	6	1	0	0	42
15:45	39	0	5	0	0	0	0	44	27	1	5	2	0	0	35
16:00	40	0	7	0	0	0	0	47	28	0	5	2	0	0	35
16:15	45	0	4	1	0	0	0	50	31	0	5	0	0	0	36
16:30	53	0	10	0	0	0	0	63	33	1	5	0	0	0	39
16:45	57	0	4	0	0	0	0	61	27	0	7	0	0	0	34
17:00	62	0	13	2	0	0	0	77	29	0	7	2	0	0	38
17:15	53	0	5	1	0	0	0	59	34	0	4	2	0	0	46
17:30	71	0	7	1	0	0	0	79	41	0	3	2	0	0	46
17:45	53	0	3	0	0	0	0	57	35	0	2	0	0	0	37
18:00	75	0	12	1	0	0	0	89	35	0	10	2	0	0	47
18:15	54	0	4	1	0	0	0	59	34	2	2	0	0	0	38
18:30	38	0	3	2	0	0	0	43	35	0	2	0	0	0	38
18:45	39	0	5	0	0	0	1	47	18	0	3	2	0	0	23
25:75	1388	13	177	58	6	1	6	1629	1674	14	217	109	5	5	13



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 4
Location R157(N) / Moygaddy / R157(S)
Date Tuesday 28 May 2019

Time	To Am A - R157(N)				From Am A - R157(N)				Veh. Total	P/C	M/C	P/SV	P/V	Veh. Total
	CAR	Taxi	LGV	HGV	CAR	Taxi	LGV	HGV						
7:00	116	1	27	2	0	0	0	0	146	0	0	0	0	146
7:15	137	0	20	3	1	0	0	0	161	0	0	0	0	161
7:30	169	0	22	7	0	2	0	0	200	0	0	0	1	201
7:45	182	0	20	4	0	0	0	0	206	0	0	0	0	206
8:00	147	1	18	0	0	0	0	0	166	0	0	0	0	166
8:15	145	0	6	12	0	0	0	0	163	0	0	0	0	163
8:30	117	1	12	3	0	0	0	0	134	0	0	0	0	134
8:45	93	2	5	7	1	1	0	0	109	0	0	0	0	109
9:00	77	0	9	7	1	1	0	0	95	0	0	0	0	95
9:15	79	1	8	3	0	0	0	0	91	0	0	0	0	91
9:30	57	2	4	2	0	0	0	0	65	0	0	0	0	65
9:45	49	1	2	3	0	0	0	0	55	0	0	0	0	55
10:00	34	1	7	5	0	0	0	0	47	0	0	0	0	47
10:15	29	0	5	4	0	0	0	0	39	0	0	0	0	39
10:30	29	1	9	2	0	0	0	0	41	0	0	0	0	41
10:45	34	0	7	3	0	0	0	0	44	0	0	0	0	44
11:00	32	0	5	3	0	0	0	0	40	0	0	0	0	40
11:15	44	0	5	3	0	0	0	0	52	0	0	0	0	52
11:30	27	0	4	3	0	0	0	0	34	0	0	0	0	34
11:45	36	0	3	3	0	0	0	0	42	0	0	0	0	42
12:00	53	0	7	2	0	0	0	0	62	0	0	0	0	62
12:15	36	1	5	4	0	0	0	0	46	0	0	0	0	46
12:30	37	2	3	4	0	0	0	0	46	0	0	0	0	46
12:45	36	0	1	4	0	0	0	0	41	0	0	0	0	41
13:00	40	0	5	5	0	0	0	0	50	0	0	0	0	50
13:15	42	1	4	6	0	0	0	0	53	0	0	0	0	53
13:30	41	1	6	7	0	0	0	0	56	0	0	0	0	56
13:45	34	0	8	3	2	3	0	0	50	0	0	0	0	50
14:00	43	2	5	3	0	0	0	0	53	0	0	0	0	53
14:15	50	0	4	1	0	0	0	0	55	0	0	0	0	55
14:30	41	1	2	1	0	0	0	0	45	0	0	0	0	45
14:45	43	0	3	2	2	0	0	0	50	0	0	0	0	50
15:00	46	0	7	1	0	0	0	0	54	0	0	0	0	54
15:15	54	0	7	5	0	0	0	0	67	0	0	0	0	67
15:30	51	1	8	1	0	0	0	0	62	0	0	0	0	62
15:45	38	1	6	2	0	0	0	0	47	0	0	0	0	47
16:00	42	0	10	2	0	0	0	0	54	0	0	0	0	54
16:15	68	0	6	0	0	0	0	0	76	0	0	0	0	76
16:30	61	1	10	0	0	0	0	0	73	0	0	0	0	73
16:45	48	0	11	0	0	0	0	0	59	0	0	0	0	59
17:00	71	0	9	2	0	0	0	0	82	0	0	0	0	82
17:15	70	0	5	3	0	0	0	0	78	0	0	0	0	78
17:30	80	0	6	2	0	0	0	0	88	0	0	0	0	88
17:45	58	0	8	0	0	0	0	0	66	0	0	0	0	66
18:00	55	2	11	2	0	0	0	0	70	0	0	0	0	70
18:15	51	2	4	0	0	0	0	0	57	0	0	0	0	57
18:30	56	0	3	1	0	0	0	0	61	0	0	0	0	61
18:45	39	0	4	2	2	0	0	0	45	0	0	0	0	45
25/75	3017	26	366	153	11	9	22	3604	2915	22	395	141	11	3503



10084 / Moygaddy
May 2019
Junction Turning Count

Site No. 4
Location R157(N) / Moygaddy / R157(S)
Date Tuesday 28 May 2019

Time	To Am B - Moygaddy				From Am B - Moygaddy				Veh. Total	P/C	M/C	P/SV	P/V	Veh. Total
	CAR	Taxi	LGV	HGV	CAR	Taxi	LGV	HGV						
7:00	18	0	5	1	0	0	0	0	24	0	0	0	0	24
7:15	14	0	5	3	0	0	0	0	22	0	0	0	0	22
7:30	24	0	5	0	0	0	0	0	30	0	0	0	0	30
7:45	35	0	5	1	0	0	0	0	42	0	0	0	0	42
8:00	26	0	3	3	0	0	0	0	32	0	0	0	0	32
8:15	48	0	5	2	0	0	0	0	55	0	0	0	0	55
8:30	58	1	6	1	0	0	0	0	67	0	0	0	0	67
8:45	60	0	10	2	1	0	0	0	73	0	0	0	0	73
9:00	66	0	4	6	0	0	0	0	76	0	0	0	0	76
9:15	54	2	5	1	0	0	0	0	62	0	0	0	0	62
9:30	30	2	2	1	0	0	0	0	37	0	0	0	0	37
9:45	19	0	2	4	1	0	0	0	26	0	0	0	0	26
10:00	22	0	3	2	0	0	0	0	27	0	0	0	0	27
10:15	20	1	7	0	0	0	0	0	28	0	0	0	0	28
10:30	25	0	3	3	0	0	0	0	31	0	0	0	0	31
10:45	29	1	3	2	0	0	0	0	35	0	0	0	0	35
11:00	20	0	5	2	0	0	0	0	27	0	0	0	0	27
11:15	28	0	3	1	0	0	0	0	32	0	0	0	0	32
11:30	37	1	5	3	0	0	0	0	47	0	0	0	0	47
11:45	43	0	6	3	0	0	0	0	52	0	0	0	0	52
12:00	44	0	5	2	0	0	0	0	51	0	0	0	0	51
12:15	45	0	5	2	0	0	0	0	52	0	0	0	0	52
12:30	27	0	5	2	0	0	0	0	37	0	0	0	0	37
12:45	25	1	7	2	0	0	0	0	35	0	0	0	0	35
13:00	32	0	7	2	0	0	0	0	41	0	0	0	0	41
13:15	38	0	5	2	0	0	0	0	45	0	0	0	0	45
13:30	37	2	7	1	0	0	0	0	47	0	0	0	0	47
13:45	45	1	3	1	0	0	0	0	50	0	0	0	0	50
14:00	41	0	10	0	0	0	0	0	51	0	0	0	0	51
14:15	42	0	5	2	0	0	0	0	50	0	0	0	0	50
14:30	50	1	1	1	0	0	0	0	53	0	0	0	0	53
14:45	89	1	2	6	1	0	0	0	99	0	0	0	0	99
15:00	48	2	4	1	0	0	0	0	55	0	0	0	0	55
15:15	57	2	6	1	2	0	0	0	68	0	0	0	0	68
15:30	70	4	5	1	1	0	0	0	82	0	0	0	0	82
15:45	68	1	6	0	0	0	0	0	75	0	0	0	0	75
16:00	77	0	14	3	0	0	0	0	94	0	0	0	0	94
16:15	87	0	10	3	0	0	0	0	101	0	0	0	0	101
16:30	101	1	13	2	0	0	0	0	118	0	0	0	0	118
16:45	108	0	14	0	1	0	0	0	123	0	0	0	0	123
17:00	110	1	18	3	0	0	0	0	133	0	0	0	0	133
17:15	103	0	12	1	0	0	0	0	116	0	0	0	0	116
17:30	132	0	11	1	0	0	0	0	144	0	0	0	0	144
17:45	109	2	13	0	0	0	0	0	125	0	0	0	0	125
18:00	126	0	17	2	0	0	0	0	146	0	0	0	0	146
18:15	112	0	12	1	0	0	0	0	125	0	0	0	0	125
18:30	72	1	5	2	0	0	0	0	81	0	0	0	0	81
18:45	78	0	16	0	0	0	0	0	97	0	0	0	0	97
25/75	2649	28	330	85	10	3	14	3119	2513	24	270	69	11	2902

Site No.	4
Location	R157(N) / Moygaddy / R157(S)
Date	Tuesday, 28 May 2019
Junction turning Count	

Time	8 to A - Morgado to 1515[N]					8 to C - Morgado to 1515[S]					Veh.				
	CAP	TotL	IGV	HGV	P5V	M/C	P/C	Total	CAP	TotL		IGV	HGV	P5V	M/C
7:00	57	0	11	4.6	0	0	0	72.6	35	0	4	0	0	0	39
7:15	715	63	0	14	4.6	0	0	81.6	43	1	5	2.3	0	0	51.3
7:30	720	72	0	8	4.6	0	0	84.6	41	0	7	0	0	0	48
7:45	76	0	7	0	0	0	0	83	43	0	5	2.3	0	0	50.3
8:00	72	1	10	2.3	0	0	0.2	85.5	53	0	3	0	0	0	56
	815	71	0	3	6.9	0	0	81.1	41	0	2	0	0	0	43
8:30	48	0	5	2.3	2	0	0	57.3	59	0	7	2.3	0	0	68.3
8:45	45	1	2	0	0	0.4	0	48.4	72	0	3	4.6	0	0	79.6
9:00	41	0	3	6.9	2	0	0	52.9	29	1	3	2.3	0	0	35.3
9:15	39	1	5	4.6	0	0	0	49.6	40	0	1	0	0	0	41
9:30	32	1	1	4.6	0	0	0	38.6	42	2	4	2.3	2	0	52.3
9:45	22	1	2	2.3	0	0	0	27.3	22	0	1	4.6	0	0	27.6
10:00	14	0	3	6.9	0	0	0	23.9	22	0	2	2.3	4	0	30.3
10:15	5	0	2	4.6	0	0	0	11.6	16	0	3	2.3	0	0	21.3
10:30	10	1	2	0	0	0	0	13	8	1	0	0	0	0	9
10:45	18	0	2	4.6	0	0	0	24.6	19	0	2	0	0	0	21
11:00	18	0	2	4.6	0	0	0.2	24.8	18	0	6	2.3	0	0	24.3
11:15	20	0	2	2.3	0	0	0	24.5	18	0	2	0	0	0	20
11:30	13	0	1	0	0	0	0	14	8	0	2	0	0	0	10
11:45	13	0	2	2.3	0	0	0	17.3	24	2	0	2.3	0	0	28.3
12:00	19	0	4	2.3	0	0	0	25.3	15	0	2	2.3	0	0	19.3
12:15	13	1	2	0	0	0	0	16	7	0	5	4.6	0	0	16.6
12:30	12	1	0	0	0	0	0	13	22	0	2	0	0	0	24
12:45	15	0	1	0	0	0	0	16	17	0	2	2.3	0	0	21.3
13:00	14	0	3	2.3	0	0	0	19.3	11	0	1	2.3	0	0	14.3
13:15	15	0	1	4.6	0	0	0	20.6	10	0	1	0	0	0	11
13:30	18	0	3	9.2	0	0	0	30.2	19	0	2	2.3	0	0	23.3
13:45	11	0	3	0	0	1.2	0	15.2	9	0	2	0	0	0	11
14:00	14	2	2	4.6	0	0	0.2	22.8	23	0	2	4.6	0	0	29.6
14:15	34	0	0	0	0	0	0	34	23	0	0	0	0	0	23
14:30	19	0	0	2.3	0	0	0	21.3	19	0	2	2.3	0	0	23.3
14:45	15	0	1	0	4	0	0	20	17	1	1	0	0	0	19
15:00	17	0	4	0	0	0	0	21	22	0	2	2.3	0	0	24.3
15:15	32	0	3	2.3	0	0	0	37.3	28	2	1	0	0	0	0.2
15:30	18	0	2	0	0	0	0	20	11	1	2	2.3	0	0	16.3
15:45	11	0	1	0	0	0	0	12	27	0	2	0	4	0	33
16:00	14	0	5	0	0	0	0	19	27	0	1	0	0	0	0.2
16:15	37	0	1	0	0	0	0.4	38.4	25	0	4	0	0	0	29
16:30	28	0	5	0	0	0	0.2	35.2	24	0	3	0	0	0	27
16:45	21	0	4	0	0	0	0	25	20	0	2	2.3	0	0	24.3
17:00	42	0	2	0	0	0	0	44	10	0	2	0	0	0	12
17:15	34	0	1	2.3	0	0	0	37.3	20	0	3	0	0	0	23
17:30	39	0	3	0	0	0	0	42	17	0	4	0	0	0	20
17:45	23	0	6	0	0	0	0	29	19	0	1	0	0	0	21
18:00	20	2	1	0	0	0	0	23	17	0	1	0	0	0	20
18:15	17	0	2	0	0	0	0	19	16	1	5	0	0	0	18
18:30	21	0	1	2.3	0	0	0	24.3	23	0	3	0	0	0	22
18:45	21	0	1	0	4	0	0	26.2	19	0	1	0	0	0	20
25:75	343	12	149	101.2	12	1.6	1.8	620.6	170	12	121	57.5	10	0	0.4
															130.3

Site No.	4
Location	R157(N) / Moygaddy / R157(S)
Date	Tuesday 28 May 2019

Date	Time	C to B - R15(S) To Morgaady										Veh.					C to A - R15(S) To R15(N)										Veh. Total
		CAR	TotL	IGV	HGV	FSV	M/C	P/C	Total	CAR	TotL	IGV	HGV	FSV	M/C	P/C											
Tuesday 28 May 2019	7:00	12	0	1	2.3	0	0	0	15.3	59	1	16	0	0	0	0	76										
	7:15	4	0	2	2.3	0	0	0	8.3	74	0	8.3	2.3	2	0	0	84.3										
	7:30	7:30	10	3	0	0	0	0	13	97	0	14	11.5	0	0.8	0	123.3										
	7:45	12	0	4	2.3	2	0	0	20.3	105	0	13	9.2	0	0	0	128.2										
	8:00	9	0	1	0	0	0	0	10	75	0	8	13.8	0	0	0	94.8										
	8:15	13	0	0	2.3	0	0	0	15.3	74	0	3	20.7	0	0	0	97.7										
	8:30	23	1	5	2.3	0	0	0	31.3	69	1	7	4.6	0	0	0	81.6										
	8:45	33	0	5	2.3	0	0	0	40.3	48	1	3	16.1	2	0	0	70.1										
	9:00	37	0	3	9.2	0	0	0	49.2	36	0	6	9.2	0	0.4	0	51.6										
	9:15	12	2	4	2.3	0	0	0	20.3	40	0	3	2.3	0	0	0	45.3										
	9:30	9	1	1	0	2	0	0	13	25	1	3	0	0	0	0	29										
	9:45	8	0	2	0	0	0	0	12	27	0	0	4.6	0	0	0	31.6										
	10:00	11	0	0	0	0	0	0	11	20	1	4	4.6	0	0	0.2	29.8										
	10:15	8	0	7	0	0	0	0	15	24	0	7	4.6	0	0	0.2	31.8										
	10:30	16	0	2	4.6	0	0	0	22.6	19	0	3	4.6	0	0	0	30.6										
	10:45	14	0	0	0	0	0	0	14	16	0	5	2.3	0	0	0	23.3										
	11:00	10	0	3	0	0	0	0	13	14	0	3	6.9	0	0	0	23.9										
	11:15	17	0	3	0	0	0	0	20	24	0	3	4.6	0	0	1.2	32.8										
	11:30	18	1	2	2.3	0	0	0.2	25.3	14	0	3	6.9	0	0	0	23.9										
	11:45	20	0	3	2.3	0	0	0	23.3	23	0	1	4.6	0	0	0	28.6										
	12:00	30	0	3	0	0	0	0	33	34	0	3	2.3	0	0	0.6	39.9										
	12:15	23	0	3	4.6	0	0	0	30.6	25	0	3	9.2	0	0	0	35.2										
	12:30	18	0	5	2.3	0	0	0	25.3	23	1	3	9.2	0	0	0	38.2										
	12:45	16	1	3	0	0	0	0	20	21	0	0	9.2	0	0.4	0	30.6										
	13:00	20	0	4	2.3	0	0	0	26.3	26	0	2	9.2	0	0	0	37.2										
13:15	28	0	1	2.3	0	0	0	31.3	27	1	3	9.2	0	0	0	40.2											
13:30	21	1	3	2.3	0	0	0	27.3	23	1	3	6.9	2	0	0	33.9											
13:45	24	0	2	0	0	0	0	26	23	0	5	4.6	4	0	0	38.9											
14:00	27	0	5	0	0	0	0	32	29	0	3	2.3	0	0	0	34.3											
14:15	24	0	3	2.3	0	0	0.2	29.5	16	0	4	2.3	0	0	0	22.3											
14:30	26	1	1	2.3	0	0	0	30.3	22	1	2	0	0	0	0	25											
14:45	60	1	1	6.9	2	0	0	70.9	28	0	2	4.6	0	0	0	34.6											
15:00	33	1	3	2.3	0	0	0	39.3	29	0	3	2.3	0	0	0	34.3											
15:15	29	1	4	2.3	4	0	0	40.3	22	0	4	9.2	0	0	0.2	35.4											
15:30	34	2	3	2.3	0	0	0	41.3	33	1	6	2.3	0	0.4	0	42.7											
15:45	39	0	5	0	0	0	0	44	27	1	5	4.6	0	0	0	37.6											
16:00	40	0	7	0	0	0	0	47	28	0	5	4.6	0	0	0	37.6											
16:15	45	0	4	2.3	0	0	0	51.3	31	0	5	0	0	0	0	36											
16:30	53	0	10	0	0	0	0	63	33	1	5	0	0	0	0	39											
16:45	57	0	4	0	0	0	0	61	27	0	7	0	0	0	0	34											
17:00	62	0	13	4.6	0	0	0	79.6	29	0	7	4.6	0	0	0	40.6											
17:15	53	0	5	2.3	0	0	0	60.3	36	0	4	4.6	0	0	0	44.6											
17:30	71	0	7	2.3	0	0	0	80.3	41	0	3	4.6	0	0	0	48.6											
17:45	53	0	3	0	0	0	0.2	54.2	35	0	2	0	0	0	0	37											
18:00	75	0	12	2.3	0	0	0.2	89.5	35	0	10	4.6	0	0	0	49.6											
18:15	54	0	4	2.3	0	0	0	60.3	34	2	0	0	0	0	0	38											
18:30	38	0	3	4.6	0	0	0	45.6	35	0	2	0	0	0	0.2	37.2											
18:45	39	0	5	0	0	0	0.4	44.8	18	0	3	4.6	0	0	0	25.6											
25:75	1368	13	177	87.4	12	0.4	1.2	1679	1674	14	317	960.7	10	9	9.2	930.6											



Site No. 4
Location R157(N) / Moygaddy / R157(S)
Date Tuesday 28 May 2019

Time	To Arm A - R157(N)										From Arm A - R157(N)										Veh. Total
	CAR	Taxi	LGW	HGV	PSV	M/C	P/C	Total	CAR	Taxi	LGW	HGV	PSV	M/C	P/C						
7:00	116	1	27	4.6	0	0	0	148.6	29	4.6	10	2.3	0	0	0	41.3					
7:15	137	0	20	6.9	2	0	0	165.9	38	0	11	1.5	0	0	0	65.5					
7:30	169	0	22	16.1	0	0.8	0	207.9	47	0	16	4.6	0	0	0	85.3					
7:45	182	0	20	9.2	0	0	0	211.2	53	1	5	2.3	0	0	0	61.3					
8:00	147	1	18	16.1	0	0	0	182.3	54	1	7	13.8	0	0	0	74.8					
8:15	145	0	6	27.6	0	0	0.2	178.8	61	1	12	6.9	0	0	0	80.9					
8:30	117	1	12	6.9	2	0	0	138.9	70	0	5	6.9	2	0	0	83.9					
8:45	93	2	5	16.1	2	0.4	0	118.5	59	1	8	11.5	2	0	0	81.5					
9:00	77	0	9	16.1	2	0.4	0	104.5	51	0	3	9.2	2	0	0	65.2					
9:15	79	1	8	6.9	0	0	0	94.9	40	0	1	2.3	0	0	0	63.3					
9:30	57	2	4	4.6	0	0	0	67.6	40	1	5	18.4	6	0	0.2	70.6					
9:45	49	1	2	6.9	0	0	0	58.9	38	0	3	18.4	0	0	0	59.4					
10:00	34	1	7	11.5	0	0	0.2	35.7	22	0	6	9.2	0	0	0	37.2					
10:15	29	0	5	9.2	0	0	0	43.4	41	1	4	9.2	0	0	0	55.2					
10:30	29	1	9	4.6	0	0	0	43.6	23	0	5	4.6	0	0	0	32.6					
10:45	34	0	7	6.9	0	0	0	47.9	44	1	5	6.9	0	0	0	54.9					
11:00	32	0	5	11.5	0	0	0.2	48.7	35	0	3	9.2	0	0	0	47.2					
11:15	44	0	5	6.9	0	1.4	0	57.3	39	0	3	11.5	0	0	0	53.5					
11:30	27	0	4	6.9	0	0	0	37.9	43	0	5	9.2	2	0	0	59.2					
11:45	36	0	3	6.9	0	0	0	45.9	43	1	8	4.6	0	0	0	56.6					
12:00	53	0	7	4.6	0	0	0.6	65.2	33	0	6	6.9	0	0	0	45.9					
12:15	36	1	5	9.2	0	0	0	51.2	42	0	4	4.6	0	0	0	50.6					
12:30	37	2	3	9.2	0	0	0	51.2	39	0	4	9.2	0	0	0.6	52.8					
12:45	36	0	1	9.2	0	0.4	0	46.6	25	0	5	9.2	0	0	0.4	39.6					
13:00	40	0	5	11.5	0	0	0	56.5	36	0	5	2.3	0	0	0	43.3					
13:15	42	1	4	13.8	0	0	0	60.8	38	0	10	2.3	0	0	0	50.3					
13:30	41	1	6	16.1	2	0	0	66.1	41	1	7	9.2	0	0	0	58.2					
13:45	34	0	8	6.9	4	1.2	0	54.1	48	1	5	4.6	0	0	0	58.6					
14:00	43	2	5	6.9	0	0	0.2	59.1	39	0	8	6.9	2	0	0	55.9					
14:15	50	0	4	2.3	0	0	0	36.3	46	0	9	9.2	0	0	0.2	64.4					
14:30	41	1	2	2.3	0	0	0	46.3	56	0	2	9.2	0	0	0	67.2					
14:45	43	0	3	4.6	4	0	0	54.6	55	0	3	6.9	0	0	0	65.3					
15:00	46	0	7	2.3	0	0	0	55.3	46	1	1	6.9	0	0	0	54.9					
15:15	54	0	7	11.5	0	0	0.2	72.7	54	1	7	4.6	0	0	0	68.6					
15:30	51	1	8	2.3	0	0.4	0	62.7	64	2	5	4.6	2	0	0.2	77.8					
15:45	38	1	6	4.6	0	0	0	49.6	75	1	7	2.3	0	0	0	85.3					
16:00	42	0	10	4.6	0	0	0	56.6	80	0	19	20.7	0	0	0	120.1					
16:15	68	0	6	0	0	0	0	66	136	3	15	0	0	0	0	110.3					
16:30	61	1	10	0	0	0	0.4	74.4	89	0	14	6.9	0	0.4	0	127.4					
16:45	48	0	11	0	0	0	0.2	72.2	107	2	13	4.6	0	0	0	141					
17:00	71	0	9	4.6	0	0	0	59	122	0	17	0	2	0	0	141					
17:15	70	0	5	6.9	0	0	0	84.8	100	1	20	4.6	0	0.4	0.2	128.2					
17:30	80	0	6	4.6	0	0	0	81.9	124	0	21	2.3	0	0.4	0	147.7					
17:45	58	0	8	0	0	0	0	90.6	145	0	15	2.3	2	0	0	164.3					
17:55	58	0	8	0	0	0	0	66	136	3	15	0	0	0	0	144.3					
18:00	55	2	11	4.6	0	0	0	72.6	104	1	19	4.6	0	0	0	128.6					
18:15	51	2	4	0	0	0	0	57	112	0	11	6.9	0	0	0	129.9					
18:30	54	0	3	2.3	0	0	0	61.5	84	1	4	0	0	0.4	0.2	89.6					
18:45	59	0	4	4.6	4	0	0.2	51.8	83	0	14	0	0	0	0	97.2					
25:75	3017	26	366	351.9	22	3.6	4.4	3790.9	2915	22	395	354.3	22	3.6	2	3683.9					



Site No. 4
Location R157(N) / Moygaddy / R157(S)
Date Tuesday 28 May 2019

Time	To Arm B - Moygaddy							From Arm B - Moygaddy							Veh. Total	P/C
	CAR	Taxi	LGW	HGV	PSV	M/C	P/C	CAR	Taxi	LGW	HGV	PSV	M/C	P/C		
7:00	18	0	5	2.3	0	0	0	92	0	15	4.6	0	0	0	111.6	
7:15	14	0	5	6.9	0	0	0	106	1	19	6.9	0	0	0	132.9	
7:30	24	0	5	0	0	0.2	0	113	0	15	4.6	0	0	0	132.6	
7:45	35	0	5	2.3	2	0	0	119	0	12	2.3	0	0	0	133.3	
8:00	26	0	3	6.9	0	0	0	125	1	13	2.3	0	0	0	141.5	
	48	0	5	4.6	0	0	0	112	0	5	6.9	0	0	0	124.1	
8:15								57.6							0.2	
8:30	58	1	6	2.3	2	0	0	107	0	12	4.6	2	0	0	126.6	
8:45	60	0	4	13.8	0	0	0	117	1	5	4.6	0	0.4	0	128	
9:00	66	0	4	13.8	0	0	0	117	0	6	9.2	2	0	0	128	
9:15	54	2	5	2.3	0	0	0	119	0	6	4.6	0	0	0	128	
9:30	30	2	2	2.3	2	0	0	74	3	5	6.9	2	0	0	90.6	
9:45	19	0	2	9.2	2	0	0	38.5	74	3	5	6.9	2	0	90.9	
10:00	22	0	3	4.6	0	0	0	44	1	3	6.9	0	0	0	54.5	
	20	0	3	4.6	0	0	0	36	0	3	9.2	4	0	0	54.5	
10:15	28	0	3	2.3	0	0	0	33.3	38	0	4	2.3	0	0	32.9	
10:30	25	1	7	0	0	0.2	0	21	0	3	0	0	0	0	32.9	
10:45	29	1	3	4.6	0	0	0	37.6	37	2	2	4.6	0	0	45.6	
11:00	20	0	5	4.6	0	0	0	29.6	36	0	4	4.6	0	0	45.6	
	11:15	38	0	5	6.9	0	0	50.1	21	0	6	4.6	0	0	45.6	
11:30	37	1	5	6.9	0	0	0	55.9	37	2	2	4.6	0	0	45.6	
11:45	43	0	6	6.9	0	0	0	58.6	34	0	6	4.6	0	0	45.6	
12:00	44	0	5	4.6	0	0	0	58.6	34	0	7	4.6	0	0	45.6	
12:15	45	0	5	4.6	0	0	0	58.6	34	0	7	4.6	0	0	45.6	
12:30	27	0	5	4.6	0	0	0	54.6	20	1	7	4.6	0	0	32.6	
12:45	25	1	7	4.6	0	0	0	37.2	34	1	2	0	0	0	37.2	
13:00	32	0	7	4.6	0	0	0	37.2	32	0	3	2.3	0	0	37.2	
13:15	38	0	5	4.6	0	0	0	45.6	25	0	4	4.6	0	0	33.6	
13:30	37	2	7	2.3	0	0	0	47.6	25	0	2	4.6	0	0	31.6	
13:45	45	1	3	2.3	0	0	0	48.3	37	0	5	11.5	0	0	53.5	
14:00	41	0	10	0	0	0	0	51.3	20	0	5	0	0	0	26.2	
14:15	42	0	5	4.6	0	0	0	51	37	2	4	9.2	0	0.2	52.4	
14:30	50	1	1	2.3	0	0.2	0	51.8	57	0	4	0	0	0	57	
14:45	89	1	2	13.8	2	0	0	54.3	38	0	2	4.6	0	0	44.6	
14:55	48	2	4	2.3	0	0	0	107.8	32	1	2	0	4	0	39	
15:00	57	2	6	2.3	0	0	0	56.3	39	0	6	2.3	0	0	47.3	
15:15	57	2	6	2.3	4	0	0	71.3	60	2	4	2.3	0	0	68.5	
15:30	70	4	5	2.3	2	0	0	83.5	29	1	4	2.3	0	0	36.3	
15:45	68	1	6	0	0	0	0	75	38	0	3	0	4	0	45	
16:00	77	0	14	6.9	0	0	0	41	0	6	0	0	0	0	47.2	
16:15	87	0	10	6.9	0	0.4	0	62	0	5	0	0	0	0.2	67.4	
16:30	101	1	13	4.6	0	0.4	0	120	52	0	6	0	0	0	60.2	
16:45	108	0	14	0	2	0	0	124	41	0	4	2.3	0	0	48.3	
17:00	110	1	18	6.9	0	0	0	52	0	4	0	0	0	0	36	
17:15	103	0	12	2.3	0	0	0	136.1	54	0	4	2.3	0	0	60.3	
17:30	132	0	11	2.3	0	0	0	145.3	56	0	7	0	0	0	63	
17:45	109	2	13	0	0	0.2	0	124.2	42	0	7	0	0	0	49	
18:00	126	0	17	4.6	0	0	0	147.8	37	2	2	0	0	0	41	
18:15	112	0	12	2.3	0	0	0	126.3	33	1	7	0	0	0	41	
18:30	72	1	5	4.6	0	0	0	82.6	44	0	4	2.3	0	0	50.3	
18:45	78	0	16	0	0	0.4	0	94.8	40	0	4	0	0	0.2	46.2	
25:75	26:49	28	330	195.5	20	1.2	2.8	3226.5	2513	74	270	158.7	22	1.6	2.2	2991.5



Site No. 4
Location R157(N) / Moygaddy / R157(S)
Date Tuesday 28 May 2019

Time	To Arm C - R157(S)				From Arm C - R157(S)				Ven. Total	P/C	M/C	P/V	HGV	PSV	Total	P/C	M/C	P/V	HGV	PSV	Total
	CAR	Tow	GV	GV	CAR	Tow	GV	GV													
7:00	58	0	10	2.3	0	0	0	0	70.3	0	0	0	0	0	70.3	0	0	0	0	0	91.3
7:15	71	1	18	9.2	0	0	0	0	99.2	0	0	0	0	0	99.2	0	0	0	0	0	92.6
7:30	74	0	16	4.6	0	0	0	0	94.6	0	0	0	0	0	94.6	0	0	0	0	0	136.3
7:45	73	1	9	4.6	0	0	0	0	87.6	0	0	0	0	0	87.6	0	0	0	0	0	148.5
8:00	90	0	8	6.9	0	0	0	0	104.9	0	0	0	0	0	104.9	0	0	0	0	0	106.8
8:15	67	1	9	4.6	0	0	0	0	81.6	0	0	0	0	0	81.6	0	0	0	0	0	113
8:30	94	0	11	9.2	0	0	0	0	114.2	0	0	0	0	0	114.2	0	0	0	0	0	112.9
8:45	104	1	6	13.8	0	0	0	0	124.8	0	0	0	0	0	124.8	0	0	0	0	0	110.4
9:00	51	1	5	6.9	2	0	0	0	65.9	0	0	0	0	0	65.9	0	0	0	0	0	100.8
9:15	58	0	1	2.3	0	0	0	0	61.3	0	0	0	0	0	61.3	0	0	0	0	0	65.6
9:30	61	2	8	18.4	8	0	0	0	97.4	0	0	0	0	0	97.4	0	0	0	0	0	42
9:45	49	0	4	13.8	0	0	0	0	66.8	0	0	0	0	0	66.8	0	0	0	0	0	43.6
10:00	33	0	5	6.9	4	0	0	0	48.9	0	0	0	0	0	48.9	0	0	0	0	0	40.8
10:15	45	0	7	11.5	0	0	0	0	63.5	0	0	0	0	0	63.5	0	0	0	0	0	46.8
10:30	22	1	4	2.3	0	0	0	0	29.3	0	0	0	0	0	29.3	0	0	0	0	0	53.2
10:45	48	0	4	2.3	0	0	0	0	54.3	0	0	0	0	0	54.3	0	0	0	0	0	37.3
11:00	43	0	7	6.9	0	0	0	0	56.9	0	0	0	0	0	56.9	0	0	0	0	0	36.9
11:15	46	0	5	9.2	0	0	0	0	60.2	0	0	0	0	0	60.2	0	0	0	0	0	52.8
11:30	32	0	4	4.6	2	0	0	0	42.6	0	0	0	0	0	42.6	0	0	0	0	0	1.2
11:45	44	3	5	2.3	0	0	0	0	54.3	0	0	0	0	0	54.3	0	0	0	0	0	0.2
12:00	34	0	6	4.6	0	0	0	0	44.6	0	0	0	0	0	44.6	0	0	0	0	0	0.6
12:15	27	0	7	9.2	0	0	0	0	43.2	0	0	0	0	0	43.2	0	0	0	0	0	72.9
12:30	52	0	6	6.9	0	0	0	0	64.9	0	0	0	0	0	64.9	0	0	0	0	0	65.6
12:45	33	0	3	6.9	0	0	0	0	43.3	0	0	0	0	0	43.3	0	0	0	0	0	53.9
13:00	35	0	3	2.3	0	0	0	0	40.3	0	0	0	0	0	40.3	0	0	0	0	0	50.6
13:15	38	0	7	0	0	0	0	0	45	0	0	0	0	0	45	0	0	0	0	0	63.5
13:30	44	0	5	11.5	0	0	0	0	60.5	0	0	0	0	0	60.5	0	0	0	0	0	71.5
13:45	36	0	6	2.3	0	0	0	0	44.3	0	0	0	0	0	44.3	0	0	0	0	0	63.2
14:00	48	0	5	11.5	2	0	0	0	66.5	0	0	0	0	0	66.5	0	0	0	0	0	64.9
14:15	51	0	7	6.9	0	0	0	0	65.1	0	0	0	0	0	65.1	0	0	0	0	0	66.3
14:30	51	0	4	11.5	0	0	0	0	66.5	0	0	0	0	0	66.5	0	0	0	0	0	51.8
14:45	43	1	3	0	0	0	0	0	47.4	0	0	0	0	0	47.4	0	0	0	0	0	55.3
15:00	53	0	2	9.2	0	0	0	0	64.2	0	0	0	0	0	64.2	0	0	0	0	0	105.5
15:15	56	2	6	4.6	0	0	0	0	68.8	0	0	0	0	0	68.8	0	0	0	0	0	73.6
15:30	39	1	5	6.9	0	0	0	0	51.9	0	0	0	0	0	51.9	0	0	0	0	0	75.7
15:45	73	0	8	2.3	4	0	0	0	87.3	0	0	0	0	0	87.3	0	0	0	0	0	84
16:00	70	0	13	13.8	0	0	0	0	97.4	0	0	0	0	0	97.4	0	0	0	0	0	81.6
16:15	72	0	12	2.3	0	0	0	0	86.3	0	0	0	0	0	86.3	0	0	0	0	0	84.6
16:30	83	1	13	0	0	0	0	0	97.4	0	0	0	0	0	97.4	0	0	0	0	0	87.3
16:45	91	0	9	2.3	0	0	0	0	102.3	0	0	0	0	0	102.3	0	0	0	0	0	102
17:00	62	0	17	2.3	0	0	0	0	81.7	0	0	0	0	0	81.7	0	0	0	0	0	120.2
17:15	94	0	17	2.3	0	0	0	0	113.7	0	0	0	0	0	113.7	0	0	0	0	0	104.9
17:30	101	0	15	2.3	2	0	0	0	120.3	0	0	0	0	0	120.3	0	0	0	0	0	128.9
17:45	99	1	6	0	0	0	0	0	106	0	0	0	0	0	106	0	0	0	0	0	95
18:00	70	1	15	2.3	0	0	0	0	88.3	0	0	0	0	0	88.3	0	0	0	0	0	93.2
18:15	70	1	8	6.9	0	0	0	0	85.9	0	0	0	0	0	85.9	0	0	0	0	0	139.1
18:30	73	0	5	0	0	0	0	0	78.4	0	0	0	0	0	78.4	0	0	0	0	0	96.3
18:45	63	0	4	0	0	0	0	0	67.2	0	0	0	0	0	67.2	0	0	0	0	0	82.8
25:75	2624	19	363	273.7	24	2.8	0.8	0.2	3507.3	30.2	2.7	374	338.1	22	2.4	0.4	0.4	0.4	0.4	0.4	70.4



Site No. 5
Location R157(N) / Dillow's Road / R157(S)
Date Tuesday 28 May 2019

Time	A to C - R157(N) to R157(S)					A to B - R157(N) to Dallow's Road					Veh. Total					
	CAR	Tot	UGV	HGV	PSV	M/C	P/C	CAR	Tot	UGV		HGV	PSV	M/C	P/C	
7:00	39	0	6	1	0	0	1	19	0	5	0	0	0	24		
7:15	48	1	6	2	0	0	0	57	19	0	12	1	0	0	32	
7:30	45	0	6	1	0	0	0	52	30	0	8	1	0	0	39	
7:45	58	0	3	1	0	0	0	62	19	1	5	0	0	0	25	
8:00	58	0	7	3	0	0	0	68	28	0	2	1	0	0	31	
8:15	47	0	4	2	0	0	0	53	25	0	5	0	0	0	30	
8:30	68	0	9	3	0	0	0	80	27	0	2	0	0	0	29	
8:45	59	0	3	2	0	0	0	64	47	1	3	1	0	0	52	
9:00	39	1	2	5	0	0	0	47	12	0	1	0	1	0	14	
9:15	40	0	2	1	0	0	0	43	17	0	0	0	0	0	17	
9:30	47	1	4	6	3	0	0	61	14	0	4	1	1	0	20	
9:45	36	0	3	7	0	0	0	46	12	0	0	0	0	0	12	
10:00	29	0	5	2	2	0	0	38	6	0	1	0	0	0	7	
10:15	29	0	6	3	0	0	0	38	13	0	1	2	0	0	16	
10:30	17	0	0	0	0	0	0	17	11	0	3	1	0	0	15	
10:45	33	0	3	0	0	0	0	36	14	0	2	0	0	0	16	
11:00	24	0	5	2	0	0	0	31	16	0	2	1	0	0	21	
11:15	33	0	3	4	0	0	0	40	16	0	1	0	0	0	17	
11:30	19	0	2	2	1	0	0	24	11	0	3	0	0	0	14	
11:45	25	1	2	1	0	0	0	29	21	0	3	0	0	0	24	
12:00	22	0	2	2	0	0	0	26	11	0	2	0	0	0	13	
12:15	18	0	2	4	0	0	0	24	12	0	3	0	0	0	15	
12:30	38	0	3	2	0	0	0	43	14	0	4	1	0	0	19	
12:45	22	0	2	3	0	0	0	27	11	0	4	0	0	0	11	
13:00	22	0	3	1	0	0	0	26	10	0	1	0	0	0	11	
13:15	27	0	1	1	0	0	0	29	11	1	3	0	0	0	15	
13:30	26	1	2	3	0	0	0	32	16	0	4	2	0	0	22	
13:45	20	0	3	1	0	0	0	24	17	0	2	0	0	0	19	
14:00	34	0	1	5	1	0	0	41	12	0	4	0	0	0	16	
14:15	29	0	3	2	0	0	1	35	19	0	3	1	0	0	23	
14:30	29	0	2	4	0	0	0	35	22	0	6	1	0	0	29	
14:45	27	0	2	0	0	1	0	30	17	0	1	0	0	0	18	
15:00	34	0	2	2	0	0	0	38	18	0	1	1	0	0	20	
15:15	35	1	2	2	0	0	0	40	25	0	4	0	0	0	29	
15:30	15	1	1	4	0	0	0	21	20	0	2	0	0	0	22	
15:45	52	0	5	1	2	0	0	60	22	0	7	0	0	0	29	
16:00	39	0	5	4	0	1	2	51	31	0	4	3	0	0	36	
16:15	42	0	7	1	0	0	0	50	26	0	6	0	0	0	32	
16:30	45	0	4	0	0	1	0	50	30	1	7	0	1	0	39	
16:45	46	0	3	1	0	0	0	50	50	0	7	0	0	0	57	
17:00	25	0	4	1	0	1	0	31	29	0	10	0	0	0	39	
17:15	57	0	9	1	0	0	0	67	37	0	10	0	1	0	48	
17:30	55	0	2	0	0	0	0	57	57	1	8	1	1	0	68	
17:45	55	0	4	0	0	0	0	59	34	1	6	0	0	0	41	
18:00	34	0	7	1	0	0	0	42	41	1	6	0	0	0	48	
18:15	29	0	5	2	0	0	0	36	39	0	3	0	0	0	42	
18:30	36	1	2	0	0	0	0	41	34	0	2	0	0	1	37	
18:45	30	1	6	0	0	0	0	37	30	4	2	0	0	0	32	
Total	728	9	175	95	9	4	4	2035	1074	7	181	19	4	2	0	1287

[illegible]

Site No.

5

Location

R157(N) / Dillow's Road / R157(S)

Date

Tuesday 28 May 2019

Time	A to A' R157(N) to R157(N)							Veh.	Total	B to A' - Dillow's Road to R157(N)							Veh.	Total
	CAR	Taxi	LGV	HGV	PSV	MJC	PIC			CAR	Taxi	LGV	HGV	PSV	MJC	PIC		
7:00	0	0	0	0	0	0	0	0	48	1	1	0	0	0	40			
7:15	0	0	0	0	0	0	0	0	58	0	4	0	0	0	63			
7:30	2	0	1	0	0	0	0	3	65	0	15	0	0	2	82			
7:45	0	0	0	0	0	0	0	0	71	9	2	0	0	0	82			
8:00	0	0	0	0	0	0	0	0	62	0	7	0	0	0	59			
8:15	0	0	0	0	0	0	0	0	47	0	3	1	0	0	51			
8:30	0	0	0	0	0	0	0	0	51	1	6	1	0	0	59			
8:45	0	0	0	1	0	0	0	1	42	0	4	0	0	0	46			
9:00	1	0	0	0	0	0	1	1	36	0	5	1	0	0	42			
9:15	0	0	0	0	0	0	0	0	23	0	5	0	0	0	28			
9:30	0	0	0	0	0	0	0	0	16	1	2	0	0	0	19			
9:45	0	0	0	0	0	0	0	0	17	0	0	0	0	0	17			
10:00	0	0	0	0	0	0	0	0	17	0	0	0	0	0	17			
10:15	0	0	0	0	0	0	0	0	14	0	3	0	0	0	17			
10:30	0	0	0	0	0	0	0	0	15	0	4	2	0	0	21			
10:45	0	0	0	0	0	0	0	0	11	0	3	1	0	0	15			
11:00	1	0	0	0	0	0	1	1	10	0	3	0	0	0	13			
11:15	0	0	0	0	0	0	0	0	16	0	6	0	0	0	28			
11:30	0	0	0	0	0	0	0	0	4	0	4	1	0	0	10			
11:45	0	0	0	0	0	0	0	0	20	0	1	0	0	0	24			
12:00	1	0	0	0	0	0	1	1	28	0	3	1	0	0	32			
12:15	0	0	0	0	0	0	0	0	13	0	3	1	0	0	17			
12:30	0	0	0	0	0	0	0	0	19	0	5	1	0	0	25			
12:45	0	0	0	0	0	1	0	1	9	0	1	2	0	0	12			
13:00	0	0	0	0	0	0	0	0	12	0	3	1	0	0	16			
13:15	0	0	0	0	0	0	0	0	18	0	2	0	0	0	20			
13:30	0	0	0	0	0	0	0	0	13	0	2	0	0	0	15			
13:45	0	0	0	0	0	0	0	0	16	0	2	0	0	0	18			
14:00	1	0	0	0	0	0	1	1	15	0	3	0	0	1	19			
14:15	0	0	0	0	0	0	0	0	10	0	11	0	0	0	11			
14:30	0	0	0	0	0	0	0	0	14	1	1	0	0	0	16			
14:45	0	0	0	0	0	0	0	0	19	0	2	0	0	0	21			
15:00	0	0	0	0	0	0	0	0	14	0	4	1	0	0	19			
15:15	0	0	0	0	0	0	0	0	18	0	1	0	0	1	21			
15:30	0	0	0	0	0	0	0	0	29	2	5	0	0	0	36			
15:45	0	0	0	0	0	0	0	0	21	0	3	0	0	0	24			
16:00	0	0	0	0	0	0	0	0	22	0	1	0	0	0	23			
16:15	1	0	0	0	0	0	1	1	23	0	2	0	0	0	25			
16:30	0	0	0	0	0	0	0	0	18	0	2	0	0	0	20			
16:45	0	0	0	0	0	0	0	0	18	0	5	0	0	0	23			
17:00	0	0	0	0	0	0	0	0	21	0	6	0	0	0	27			
17:15	0	0	0	0	0	0	0	0	22	0	4	0	0	0	26			
17:30	2	0	0	0	0	0	2	2	19	0	4	0	0	0	23			
17:45	0	0	0	0	0	0	0	0	20	0	2	0	0	0	22			
18:00	1	0	0	0	0	0	0	1	23	0	7	1	0	0	33			
18:15	0	0	0	1	0	0	0	0	25	0	1	0	0	0	23			
18:30	1	0	0	0	0	0	0	1	25	0	1	0	0	0	26			
18:45	0	0	0	0	0	0	0	0	15	0	1	0	0	0	16			
25:25	11	0	1	2	0	1	0	15	1149	8	175	19	0	2	1365			

Site No.	5
Location	R157(N) / Dillow's Road / R157(S)
Date	Tuesday 28 May 2019
Junction turning Count	

Time	C to B - R15755 to Down's Road							Veh. Total	C to A - R15755 to r (S/N)							Veh. Total
	CAR	Taxi	LGV	HGV	PSV	M/C	P/C		CAR	Taxi	LGV	HGV	PSV	M/C	P/C	
7:00	0	0	0	0	0	0	0	0	23	0	4	2	0	0	0	29
7:15	1	0	0	0	0	0	0	1	24	0	5	2	1	0	0	32
7:30	1	0	0	0	0	0	0	1	35	0	2	4	0	0	0	41
7:45	2	0	0	0	0	0	0	2	46	0	7	3	1	0	0	57
8:00	1	0	0	0	0	0	0	0	37	0	3	6	0	0	0	46
8:15	1	0	0	1	0	0	0	2	37	0	1	9	0	0	0	47
8:30	3	0	0	0	0	0	0	3	42	1	7	2	0	0	0	52
8:45	8	0	0	1	0	0	0	9	37	1	4	7	1	0	0	50
9:00	4	0	0	1	0	0	0	5	35	0	4	7	0	1	0	48
9:15	9	15	0	0	0	0	0	3	25	2	4	2	0	0	0	33
9:30	9	0	0	0	0	0	0	9	17	1	1	1	1	0	0	21
9:45	1	0	0	0	0	0	0	1	17	0	1	2	1	0	1	22
10:00	2	0	0	0	0	0	0	2	14	1	4	2	0	0	0	21
10:15	1	0	0	0	0	0	0	1	19	0	8	3	0	0	1	31
10:30	3	0	0	1	0	0	0	4	19	0	4	2	0	0	0	25
10:45	2	0	0	0	0	0	0	2	19	0	2	0	0	0	0	21
11:00	1	0	0	0	0	0	0	1	16	0	2	3	0	0	0	21
11:15	2	0	0	0	0	0	0	2	25	1	1	2	0	0	0	29
11:30	6	0	0	1	0	0	0	7	24	1	0	3	0	0	0	28
11:45	3	0	0	0	0	0	0	3	25	0	2	3	0	0	0	30
12:00	4	0	0	1	0	0	0	5	40	0	1	0	0	0	0	41
12:15	1	0	0	4	0	0	0	5	31	0	3	5	0	0	0	39
12:30	10	1	0	1	0	0	0	12	24	1	2	4	0	0	0	31
12:45	4	0	0	0	0	0	0	4	29	1	3	2	0	0	0	35
13:00	3	0	1	3	0	0	0	7	36	0	2	4	0	0	0	42
13:15	5	0	0	1	0	0	0	6	35	1	2	5	0	0	0	43
13:30	5	0	2	0	0	0	0	7	31	2	3	4	1	0	0	41
13:45	4	0	1	0	0	0	0	5	31	0	5	4	2	0	0	42
14:00	3	0	0	0	0	0	0	3	40	0	6	1	0	0	0	47
14:15	7	0	0	0	0	0	0	7	27	0	6	1	0	0	0	34
14:30	5	0	0	0	0	0	0	5	35	1	2	1	0	0	0	39
14:45	11	0	0	1	0	0	0	12	69	1	2	5	1	0	0	78
15:00	11	0	1	2	0	0	0	14	48	1	2	1	0	0	0	52
15:15	13	0	1	0	0	0	0	14	32	1	7	4	2	0	0	46
15:30	5	0	0	0	0	0	0	5	43	1	4	2	0	1	0	51
15:45	9	0	3	0	0	0	0	12	43	0	7	2	0	0	0	52
16:00	6	0	1	0	0	0	0	7	50	0	11	2	0	0	0	63
16:15	17	0	3	0	0	0	0	20	49	0	8	1	0	0	0	58
16:30	8	0	1	0	0	0	0	9	74	1	12	0	0	0	0	87
16:45	15	0	0	0	0	0	0	15	63	0	5	0	0	0	0	68
17:00	12	0	1	0	0	0	0	13	71	0	13	4	0	0	0	88
17:15	15	0	0	0	0	0	0	15	69	0	5	3	0	0	0	77
17:30	17	0	2	0	0	0	0	19	87	0	5	3	0	0	0	95
17:45	21	0	2	0	0	0	0	23	67	0	4	0	0	0	1	72
18:00	10	0	1	0	0	0	0	11	84	0	15	2	0	0	1	102
18:15	15	0	1	0	0	0	0	16	70	0	4	0	0	0	0	74
18:30	6	0	1	0	0	0	0	7	51	0	4	1	0	0	1	57
18:45	9	0	0	0	0	0	0	9	43	0	7	2	0	1	2	55
25:75	305	1	22	18	0	0	0	0	340	19	217	128	11	3	7	2293

Time	C-to-C - R157(S) to R157(P)						Veh. Total
	CAR	Tax	LGV	HGV	P5V	M/C	
700	0	0	0	0	0	0	0
715	0	0	0	0	0	0	0
730	0	0	0	0	0	0	0
745	0	0	0	0	0	0	0
800	0	0	0	0	0	0	0
815	0	0	1	0	0	0	1
830	0	0	0	0	0	0	0
845	0	0	0	0	0	0	0
900	1	0	0	0	0	0	1
915	0	0	0	0	0	0	0
930	0	0	0	0	0	0	0
945	0	0	0	0	0	0	0
1000	0	0	0	0	0	0	0
1015	0	0	0	0	0	0	0
1030	0	0	0	0	0	0	0
1045	0	0	0	0	0	0	0
1100	0	0	0	0	0	0	0
1115	0	0	0	0	0	0	0
1130	0	0	0	0	0	0	0
1145	0	0	0	0	0	0	0
1200	0	0	0	0	0	0	0
1215	0	0	0	0	0	0	0
1230	0	0	0	0	0	0	0
1245	0	0	0	0	0	0	0
1300	0	0	0	0	0	0	0
1315	0	0	0	0	0	0	0
1330	0	0	0	0	0	0	0
1345	0	0	0	0	0	0	0
1400	0	0	0	0	0	0	0
1415	0	0	0	0	0	0	0
1430	0	0	0	0	0	0	0
1445	0	0	0	0	0	0	0
1500	0	0	0	1	0	0	1
1515	0	0	0	0	0	0	0
1530	1	0	0	0	0	0	1
1545	0	0	0	0	0	0	0
1600	0	0	0	0	0	0	0
1615	0	0	0	0	0	0	0
1630	0	0	0	0	0	0	0
1645	0	0	0	0	0	0	0
1700	0	0	0	0	0	0	0
1715	0	0	0	0	0	0	0
1730	1	0	0	0	0	0	1
1745	1	0	0	0	0	0	1
1800	1	0	0	0	0	0	1
1815	0	0	0	0	0	0	0
1830	0	0	0	0	0	0	0
1845	0	0	0	0	0	0	0
1855	3	0	1	0	0	0	4

Site No. 5 R157(N) / Dillow's Road / R157(S) Date Tuesday 28 May 2019																	
Location																	
Date																	
Time	To Arm B - Dillow's Road							From Arm B - Dillow's Road									
	CAR	Taxi	LGV	HGV	PSV	M/C	P/C	Total	Veh.	CAR	Taxi	LGV	HGV	PSV	M/C	P/C	Total
7:00	19	0	5	0	0	0	0	24	24	59	1	11	0	0	0	0	71
7:15	20	0	12	1	0	0	0	33	33	63	0	4	1	0	0	0	68
7:30	31	0	8	1	0	0	0	40	40	74	0	15	0	0	2	0	91
7:45	21	1	5	0	0	0	0	27	83	0	9	2	0	0	0	94	
8:00	27	0	2	1	0	0	0	32	60	0	7	0	0	0	0	67	
8:15	26	0	5	1	0	0	0	32	56	0	3	2	0	0	0	61	
8:30	30	0	2	0	0	0	0	32	60	1	7	1	0	0	0	69	
8:45	55	1	3	2	0	0	0	61	50	0	4	0	0	0	0	54	
9:00	16	0	1	1	0	0	0	19	42	0	5	1	0	0	0	48	
9:15	20	0	0	0	0	0	0	20	26	0	0	0	0	0	0	31	
9:30	23	0	1	1	0	0	0	25	22	1	2	1	0	0	0	26	
9:45	13	0	0	0	0	0	0	13	24	0	1	1	0	0	0	26	
10:00	8	0	1	0	0	0	0	9	21	0	1	0	0	0	0	21	
10:15	14	0	2	0	0	0	0	16	15	0	3	0	0	0	0	18	
10:30	14	0	3	2	0	0	0	19	17	0	4	3	0	0	0	24	
10:45	16	0	2	0	0	0	0	18	12	0	4	3	0	0	0	19	
11:00	19	0	2	1	0	0	0	22	11	0	5	0	0	0	0	14	
11:15	18	0	1	0	0	0	0	19	19	0	6	0	0	0	6	31	
11:30	18	0	3	1	0	0	0	22	7	0	4	1	0	0	0	13	
11:45	24	0	3	0	0	0	0	27	23	0	1	1	0	0	3	28	
12:00	15	0	2	1	0	0	0	18	35	0	3	1	0	0	0	39	
12:15	13	0	3	4	0	0	0	20	18	0	3	1	0	0	0	23	
12:30	24	1	4	2	0	0	0	31	21	2	5	4	0	0	0	32	
12:45	15	0	0	0	0	0	0	15	10	0	1	2	0	0	0	13	
13:00	13	0	2	3	0	0	0	18	12	0	4	3	0	0	0	19	
13:15	16	1	3	1	0	0	0	21	21	0	2	1	0	0	0	24	
13:30	21	0	6	2	0	0	0	29	21	0	2	0	0	0	0	23	
13:45	21	0	3	0	0	0	0	24	22	0	2	0	0	0	0	24	
14:00	15	0	4	0	0	0	0	19	18	1	4	0	0	0	1	24	
14:15	26	0	5	1	0	0	0	30	11	0	1	0	0	0	0	12	
14:30	27	0	4	1	0	0	0	34	17	1	1	0	0	0	0	19	
14:45	28	0	1	1	0	0	0	30	21	0	3	0	0	0	0	24	
15:00	29	0	2	3	0	0	0	34	17	0	4	3	0	0	0	24	
15:15	38	0	5	0	0	0	0	43	24	0	2	2	0	0	1	29	
15:30	25	0	2	1	0	0	0	28	32	2	5	2	0	0	0	36	
15:45	31	0	10	0	0	0	0	41	31	0	5	0	0	0	0	36	
16:00	32	0	5	3	0	0	0	45	25	0	4	0	0	0	0	29	
16:15	43	0	9	0	0	0	0	52	28	0	2	0	0	0	0	23	
16:30	38	1	8	0	1	0	0	48	21	0	2	0	0	0	0	23	
16:45	65	0	7	0	0	0	0	72	21	0	5	0	0	0	0	26	
17:00	41	0	11	0	0	0	0	52	26	0	10	0	0	0	0	36	
17:15	52	0	10	0	0	1	0	63	27	0	4	0	0	0	0	31	
17:30	74	1	10	1	1	0	0	87	26	0	5	0	0	0	0	31	
17:45	55	1	8	0	0	0	0	64	27	0	2	0	0	0	0	29	
18:00	51	1	7	0	0	0	0	59	29	0	9	1	0	0	0	39	
18:15	54	0	4	0	0	0	0	58	25	2	3	0	0	0	0	30	
18:30	40	0	3	0	0	1	0	44	31	0	3	0	0	0	0	34	
18:45	39	0	2	0	0	0	0	41	20	0	1	0	0	0	0	21	
74																	
0000																	

Time	To Arm A - R157(N)				To Arm A - R157(N)				From Arm A - R157(N)				Veh.			
	CAR	Taxi	LGV	HGV	PSV	MVC	P/C	Total	CAR	Taxi	LGV	HGV	PSV	MVC	P/C	Total
7:00	71	1	15	2	0	0	0	89	58	0	11	0	0	0	0	70
7:15	102	0	9	3	1	0	0	95	67	1	18	3	0	0	0	91
7:30	102	0	18	4	0	2	0	126	77	0	13	0	0	0	0	94
7:45	117	0	16	5	1	0	0	139	77	1	8	1	0	0	0	99
8:00	87	0	10	6	0	0	0	105	85	0	9	4	0	0	0	99
8:15	84	0	4	10	0	0	0	98	72	0	9	2	0	0	0	83
8:30	93	2	13	3	0	0	0	111	95	0	11	3	0	0	0	109
8:45	79	1	8	8	1	0	0	97	106	1	6	4	0	0	0	117
9:00	48	0	10	6	0	1	0	61	52	1	3	5	1	0	0	62
9:15	48	2	9	2	0	0	0	61	57	0	2	1	0	0	0	60
9:30	33	2	3	1	1	0	0	40	61	0	5	7	4	0	0	81
9:45	34	0	2	2	1	0	0	40	68	0	3	7	0	0	0	58
10:00	31	1	4	2	0	0	0	38	55	0	6	2	2	0	0	45
10:15	33	0	11	3	0	0	0	46	42	0	7	5	0	0	0	54
10:30	34	0	8	4	0	0	0	46	28	0	3	1	0	0	0	32
10:45	30	0	5	1	0	0	0	36	47	0	5	0	0	0	0	32
11:00	27	0	5	3	0	0	0	35	43	0	7	3	0	0	0	53
11:15	41	1	7	2	0	0	0	57	49	0	4	4	0	0	0	57
11:30	28	1	4	4	0	0	0	38	30	0	5	2	1	0	0	38
11:45	45	0	3	4	0	0	0	54	46	1	5	1	0	0	0	53
12:00	49	0	4	1	0	0	0	74	34	0	4	2	0	0	0	40
12:15	44	0	6	6	0	0	0	56	30	0	5	4	0	0	0	39
12:30	43	1	7	5	0	0	0	56	52	0	7	3	0	0	0	62
12:45	38	1	4	4	0	1	0	48	33	0	2	3	0	1	0	39
13:00	48	0	5	5	0	0	0	58	32	0	4	1	0	0	0	37
13:15	53	1	4	5	0	0	0	63	36	1	6	1	0	0	0	44
13:30	44	2	5	4	1	0	0	54	42	1	6	5	0	0	0	54
13:45	47	0	7	4	2	0	0	60	37	0	5	1	0	0	0	43
14:00	36	0	7	1	0	0	0	47	47	0	5	1	0	0	0	58
14:15	37	0	7	1	0	0	0	45	48	0	6	3	0	0	1	58
14:30	49	2	3	1	0	0	0	55	51	0	8	5	0	0	0	64
14:45	88	1	4	5	1	0	0	99	44	0	3	0	0	1	0	48
15:00	62	1	6	2	0	0	0	71	52	0	3	3	0	0	0	58
15:15	50	1	8	5	2	0	0	67	60	1	6	2	0	0	0	69
15:30	72	3	9	2	0	1	0	87	35	1	3	4	0	0	0	93
15:45	64	0	10	2	0	0	0	76	74	0	12	1	2	0	0	89
16:00	72	0	12	2	0	0	0	86	70	0	9	7	0	0	0	99
16:15	73	0	10	1	0	0	0	84	67	0	13	1	0	0	2	89
16:30	92	1	14	0	0	0	0	107	75	1	11	0	1	0	0	83
16:45	81	0	10	0	0	0	0	91	96	0	10	1	0	0	0	107
17:00	92	0	21	4	0	0	0	117	54	0	14	1	0	0	0	107
17:15	91	0	9	3	0	0	0	103	94	0	19	1	0	1	0	70
17:30	108	0	9	3	0	0	0	120	114	1	10	1	0	0	0	115
17:45	87	0	6	0	0	0	1	94	89	1	10	0	0	0	0	100
18:00	110	0	22	3	0	0	0	135	76	1	13	1	0	0	0	100
18:15	90	2	5	1	0	0	0	98	68	0	8	3	0	0	0	91
18:30	77	0	5	1	0	0	0	84	73	1	4	0	0	1	0	79
18:45	58	0	8	2	0	1	2	71	60	1	8	0	0	0	0	69
25:75	3068	27	393	149	11	6	6	3573	2623	16	357	117	13	7	4	3537



Site No. S
Location R157(N) / Dillow's Road / R157(S)
Date Tuesday 28 May 2019

Time	To Arm C - R157(S)								From Arm C - R157(S)								Ven. Total	P/C	M/C	P/SV	HGV	LGV	TAXI	CAR	Total	Ven. Total	P/C	M/C	P/SV	HGV	LGV	TAXI	CAR	Total	Ven. Total	P/C	M/C	P/SV	HGV	LGV	TAXI	CAR	Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	CAR	TAXI	LGV	HGV	P/SV	M/C	P/C		CAR	TAXI	LGV	HGV	P/SV	M/C	P/C																													CAR	TAXI	LGV	HGV	P/SV	M/C	P/C																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
7:00	50	0	6	1	0	0	0	1	58	23	0	4	2	0	0	0	29	7:15	53	1	6	2	0	0	0	0	0	0	0	0	0	0	33	7:30	54	0	6	1	0	0	0	0	0	0	0	0	42	7:45	70	0	3	1	0	0	0	0	0	0	0	0	59	8:00	66	0	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	47	8:15	56	0	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	8:30	77	0	10	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	8:45	67	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	9:00	46	1	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	9:15	43	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	9:30	53	1	4	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	9:45	43	0	3	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	10:00	33	0	5	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	10:15	30	0	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	10:30	19	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	10:45	34	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	11:00	25	0	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	11:15	36	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	11:30	21	0	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	35	11:45	28	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	12:00	29	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	12:15	23	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	12:30	40	2	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	12:45	23	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	13:00	22	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	13:15	30	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	13:30	34	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	13:45	26	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	14:00	37	1	2	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	50	14:15	30	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	14:30	32	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	14:45	29	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	15:00	37	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67	15:15	41	1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	15:30	19	1	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57	15:45	62	0	7	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	64	16:00	42	0	8	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	16:15	47	0	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78	16:30	46	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96	16:45	49	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83	17:00	30	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	101	17:15	62	0	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92	17:30	63	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	115	17:45	63	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96	18:00	39	0	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	114	18:15	34	0	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	18:30	44	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	18:45	35	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64

[illegible]



Site No. S
Location R157(N) / Dillow's Road / R157(S)
Date Tuesday 28 May 2019

Time	C to B - R157(S) to Dellow's Road							C to A - R157(S) to R157(N)							Veh. Total	Veh. Total	
	CAR	Tow	LGV	HGV	PSV	M/C	P/C	CAR	Tow	LGV	HGV	PSV	M/C	P/C			
7:00	0	0	0	0	0	0	0	23	0	4	4.6	0	0	0	31.6		
7:15	1	0	0	0	0	0	0	24	0	5	4.6	2	0	0	35.6		
7:30	1	0	0	0	0	0	0	35	0	2	9.2	0	0	0	44.2		
7:45	2	0	0	0	0	0	0	46	0	7	6.9	2	0	0	61.9		
8:00	1	0	0	0	0	0	0	37	0	3	13.8	0	0	0	53.8		
8:15	1	0	0	2.3	0	0	0	33	37	0	1	20.7	0	0	58.7		
8:30	3	0	0	0	0	0	0	42	1	7	4.6	0	0	0	54.6		
8:45	8	0	0	2.3	0	0	0	37	1	4	16.1	2	0	0	60.1		
9:00	4	0	0	2.3	0	0	0	35	0	5	16.1	0	0.4	0	56.5		
9:15	3	0	0	0	0	0	0	3	25	2	4	4.6	0	0	35.6		
9:30	9	0	0	0	0	0	0	9	17	1	1	2.3	2	0	23.3		
9:45	1	0	0	0	0	0	0	1	17	0	1	4.6	2	0	24.8		
10:00	2	0	0	0	0	0	0	2	14	1	4	4.6	0	0	23.6		
10:15	1	0	0	0	0	0	0	1	19	0	8	6.9	0	0	34.1		
10:30	3	0	0	2.3	0	0	0	5.3	19	0	4	4.6	0	0	27.6		
10:45	2	0	0	0	0	0	0	2	19	0	2	0	0	0	21		
11:00	1	0	0	0	0	0	0	1	16	0	2	6.9	0	0	24.9		
11:15	2	0	0	0	0	0	0	2	25	1	1	4.6	0	0	31.6		
11:30	6	0	0	2.3	0	0	0	8.3	24	1	0	6.9	0	0	31.9		
11:45	3	0	0	0	0	0	0	3	25	0	2	6.9	0	0	33.9		
12:00	4	0	0	2.3	0	0	0	6.3	40	0	1	0	0	0	41		
12:15	1	0	0	9.2	0	0	0	10.2	31	0	3	11.5	0	0	45.5		
12:30	10	1	0	2.3	0	0	0	13.3	24	1	2	9.2	0	0	36.2		
12:45	4	0	0	0	0	0	0	4	29	1	3	4.6	0	0	37.6		
13:00	3	0	1	6.9	0	0	0	10.9	36	0	2	9.2	0	0	47.2		
13:15	5	0	0	2.3	0	0	0	7.3	35	1	2	11.5	0	0	49.5		
13:30	5	0	2	0	0	0	0	7	31	2	3	9.2	2	0	47.2		
13:45	4	0	1	0	0	0	0	5	31	0	5	9.2	4	0	49.2		
14:00	3	0	0	0	0	0	0	3	40	0	6	2.3	0	0	48.3		
14:15	7	0	0	0	0	0	0	7	27	0	6	2.3	0	0	35.3		
14:30	5	0	0	0	0	0	0	5	35	1	2	2.3	0	0	40.3		
14:45	11	0	0	2.3	0	0	0	13.3	69	1	2	11.5	2	0	85.5		
15:00	11	0	1	4.6	0	0	0	16.6	48	1	2	2.3	0	0	53.3		
15:15	13	0	1	0	0	0	0	14	32	1	7	9.2	4	0	53.2		
15:30	5	0	0	0	0	0	0	5	43	1	4	4.6	0	0.4	53		
15:45	9	0	3	0	0	0	0	12	43	0	7	4.6	0	0	54.6		
16:00	6	0	1	0	0	0	0	7	50	0	11	4.6	0	0	65.6		
16:15	17	0	3	0	0	0	0	20	49	0	8	2.3	0	0	59.3		
16:30	8	0	1	0	0	0	0	9	74	1	12	0	0	0	87		
16:45	15	0	0	0	0	0	0	15	63	0	5	0	0	0	68		
17:00	12	0	1	0	0	0	0	13	71	0	13	9.2	0	0	93.2		
17:15	15	0	0	0	0	0	0	15	69	0	5	6.9	0	0	80.9		
17:30	17	0	2	0	0	0	0	19	87	0	5	6.9	0	0	98.9		
17:45	21	0	2	0	0	0	0	23	67	0	4	0	0	0	71.2		
18:00	10	0	1	0	0	0	0	11	84	0	15	4.6	0	0	103.8		
18:15	15	0	1	0	0	0	0	16	70	0	4	0	0	0	74		
18:30	6	0	1	0	0	0	0	7	51	0	4	2.3	0	0	57.5		
18:45	9	0	0	0	0	0	0	9	43	0	7	4.6	0	0.4	55.4		
									1908	19	217	294.4	22	1.2	1.4	2463	



Site No. S
Location R157(N) / Dillow's Road / R157(S)
Date Tuesday 28 May 2019

Time	C to C - R157(S) to R157(S)					Veh. Total	Veh. Total
	CAR	Tow	LGV	HGV	PSV		
7:00	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0
8:15	0	0	1	0	0	0	1
8:30	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0
9:00	1	0	0	0	0	0	1
9:15	0	0	0	0	0	0	0
9:30	0	0	0	0	0	0	0
9:45	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0
15:00	0	0	0	2.3	0	0	2.3
15:15	0	0	0	0	0	0	0
15:30	1	0	0	0	0	0	1
15:45	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
17:30	1	0	0	0	0	0	1
17:45	1	0	0	0	0	0	1
18:00	1	0	0	0	0	0	1
18:15	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0
25:75	5	0	1	2.3	0	0	8.3



Site No. 5
Location R157(N) / Dillow's Road / R157(S)
Date Tuesday 28 May 2019

Time	To Arm A - R157(N)				From Arm A - R157(N)				Veh. Total	P/C	M/C	PSV	HGV	LGV	Taxi	CAB	Total	Veh. Total	P/C	M/C
	CAR	Taxi	GV	GV	CAR	Taxi	GV	GV												
7:00	71	1	15	4.6	0	0	0	0	91.6	0	0	0	0	18	0	68	91.6	0	0	0
7:15	82	0	9	6.9	2	0	0	0	99.9	0	0	0	0	18	0	67	92.7	0	0	0
7:30	102	0	18	9.2	0	0.8	0	0	130	0	0	0	0	15	0	77	130	0	0	0
7:45	117	0	16	11.5	2	0	0	0	146.5	0	0	0	0	8	0	74	146.5	0	0	0
8:00	89	0	10	13.8	0	0	0	0	112.8	0	0	0	0	9	0	86	112.8	0	0	0
8:15	84	0	4	23	0	0	0	0	111	0	0	0	0	9	0	72	111	0	0	0
8:30	93	2	13	6.9	0	0	0	0	114.9	0	0	0	0	11	0	95	114.9	0	0	0
8:45	79	1	8	18.4	2	0	0	0	108.4	0	0	0	0	6	0	106	108.4	0	0	0
9:00	72	0	10	18.4	0	0.4	0	0	100.8	0	0	0	0	3	0	52	100.8	0	0	0
9:15	48	2	9	4.6	0	0	0	0	63.6	0	0	0	0	2	0	57	63.6	0	0	0
9:30	33	2	3	2.3	2	0	0	0	42.3	0	0	0	0	8	0	61	42.3	0	0	0
9:45	34	0	2	4.6	2	0	0	0	42.8	0	0	0	0	3	0	48	42.8	0	0	0
10:00	31	1	4	4.6	0	0	0	0	40.6	0	0	0	0	6	0	35	40.6	0	0	0
10:15	33	0	11	4.9	0	0	0	0	51.1	0	0	0	0	7	0	42	51.1	0	0	0
10:30	34	0	8	9.2	0	0	0	0	51.2	0	0	0	0	3	0	26	51.2	0	0	0
10:45	30	0	5	2.3	0	0	0	0	37.3	0	0	0	0	5	0	4	37.3	0	0	0
11:00	27	0	5	6.9	0	0	0	0	38.9	0	0	0	0	7	0	43	38.9	0	0	0
11:15	41	1	7	4.6	0	0	0	0	54.8	0	0	0	0	4	0	49	54.8	0	0	0
11:30	28	1	4	9.2	0	0	0	0	42.4	0	0	0	0	5	0	30	42.4	0	0	0
11:45	45	0	3	6.9	0	0	0	0	55.5	0	0	0	0	5	0	46	55.5	0	0	0
12:00	69	0	4	2.3	0	0	0	0	75.3	0	0	0	0	4	0	34	75.3	0	0	0
12:15	44	0	6	3.8	0	0	0	0	63.8	0	0	0	0	5	0	30	63.8	0	0	0
12:30	43	1	7	1.5	0	0	0	0	62.5	0	0	0	0	7	0	52	62.5	0	0	0
12:45	38	1	4	9.2	0	0.4	0	0	52.6	0	0	0	0	2	0	33	52.6	0	0	0
13:00	48	0	5	11.5	0	0	0	0	64.5	0	0	0	0	4	0	32	64.5	0	0	0
13:15	53	1	4	11.5	0	0	0	0	69.5	0	0	0	0	4	0	38	69.5	0	0	0
13:30	44	2	5	9.2	2	0	0	0	62.2	0	0	0	0	6	0	42	62.2	0	0	0
13:45	47	0	7	9.2	4	0	0	0	67.2	0	0	0	0	5	0	37	67.2	0	0	0
14:00	56	0	9	2.3	0	0	0	0	67.5	0	0	0	0	5	0	47	67.5	0	0	0
14:15	37	0	7	2.3	0	0	0	0	44.3	0	0	0	0	6	0	48	44.3	0	0	0
14:30	49	2	3	2.3	0	0	0	0	56.3	0	0	0	0	8	0	51	56.3	0	0	0
14:45	88	1	4	11.5	2	0	0	0	106.5	0	0	0	0	3	0	44	106.5	0	0	0
15:00	62	1	6	4.6	0	0	0	0	73.8	0	0	0	0	3	0	52	73.8	0	0	0
15:15	50	1	8	11.5	4	0	0	0	74.7	0	0	0	0	6	0	60	74.7	0	0	0
15:30	72	3	9	4.6	0	0.4	0	0	89	0	0	0	0	3	0	35	89	0	0	0
15:45	64	0	10	4.6	0	0	0	0	78.6	0	0	0	0	12	0	74	78.6	0	0	0
16:00	72	0	12	4.6	0	0	0	0	88.6	0	0	0	0	9	0	70	88.6	0	0	0
16:15	73	0	10	2.3	0	0	0	0	85.3	0	0	0	0	13	0	69	85.3	0	0	0
16:30	92	1	14	0	0	0	0	0	107	0	0	0	0	11	0	75	107	0	0	0
16:45	81	0	10	0	0	0	0	0	91	0	0	0	0	10	0	96	91	0	0	0
17:00	92	0	21	9.2	0	0	0	0	122.2	0	0	0	0	14	0	54	122.2	0	0	0
17:15	91	0	9	6.9	0	0	0	0	106.9	0	0	0	0	19	0	94	106.9	0	0	0
17:30	108	0	9	6.9	0	0	0	0	123.9	0	0	0	0	10	0	114	123.9	0	0	0
17:45	87	0	7	0	0	0	0	0	93.2	0	0	0	0	10	0	99	93.2	0	0	0
18:00	110	0	22	6.9	0	0	0	0	139.1	0	0	0	0	13	0	76	139.1	0	0	0
18:15	90	2	5	2.3	0	0	0	0	99.3	0	0	0	0	8	0	68	99.3	0	0	0
18:30	77	0	5	2.3	0	0	0	0	84.5	0	0	0	0	4	0	73	84.5	0	0	0
18:45	58	0	8	4.6	0	0.4	0	0	71.4	0	0	0	0	8	0	60	71.4	0	0	0
25:75	3068	27	393	342.7	22	2.4	0	0	3855.9	2823	16	357	269.1	26	2.8	0.8	3494.7			



Site No. 5
Location R157(N) / Dillow's Road / R157(S)
Date Tuesday 28 May 2019

Time	To Arm B - Dillow's Road							Veh.	From Arm B - Dillow's Road							Veh.
	CAR	Taxi	LGV	HGV	PSV	M/C	P/C		CAR	Taxi	LGV	HGV	PSV	M/C	P/C	
7:00	19	0	5	0	0	0	0	24	59	1	11	0	0	0	71	
7:15	20	0	12	2.3	0	0	0	34.3	63	0	4	2.3	0	0	69.3	
7:30	31	0	8	2.3	0	0	0	41.3	74	0	15	0	0	0.8	89.8	
7:45	21	1	5	0	0	0	0	27	83	0	9	4.6	0	0	96.6	
8:00	29	0	2	2.3	0	0	0	33.3	80	0	7	0	0	0	67	
8:15	26	0	5	2.3	0	0	0	33.3	56	0	3	4.6	0	0	63.6	
8:30	30	0	2	0	0	0	0	32	60	1	7	2.3	0	0	70.3	
8:45	55	1	3	4.6	0	0	0	63.6	50	0	4	0	0	0	54	
9:00	16	0	1	2.3	2	0	0	21.3	42	0	5	2.3	0	0	49.3	
9:15	20	0	0	0	0	0	0	20	26	0	5	0	0	0	31	
9:30	23	0	4	2.3	2	0	0	31.3	22	1	2	2.3	0	0	27.3	
9:45	13	0	0	0	0	0	0	13	24	0	1	2.3	0	0	27.3	
10:00	8	0	1	0	0	0	0	9	21	0	0	0	0	0	21	
10:15	14	0	1	4.6	0	0	0	19.6	15	0	3	0	0	0	18	
10:30	14	0	3	4.6	0	0	0	21.6	17	0	4	4.6	0	0	27.9	
10:45	16	0	2	0	0	0	0	18	12	0	4	6.9	0	0	22.9	
11:00	19	0	2	2.3	0	0	0	23.3	11	0	3	0	0	0	14	
11:15	18	0	1	0	0	0	0	19	19	0	6	0	0	0	1.2	
11:30	18	0	3	2.3	0	0	0	23.3	7	0	4	2.3	0	0	13.5	
11:45	24	0	3	0	0	0	0	27	23	0	1	2.3	0	0	26.9	
12:00	15	0	2	2.3	0	0	0	19.3	35	0	3	2.3	0	0	40.3	
12:15	13	0	3	9.2	0	0	0	25.2	18	0	3	2.3	0	0	23.3	
12:30	24	1	4	4.6	0	0	0	33.6	21	2	5	9.2	0	0	37.2	
12:45	15	0	0	0	0	0	0	15	10	0	1	4.6	0	0	15.6	
13:00	13	0	2	6.9	0	0	0	21.9	12	0	4	6.9	0	0	22.9	
13:15	16	1	3	2.3	0	0	0	22.3	21	0	2	2.3	0	0	25.3	
13:30	21	0	6	4.6	0	0	0	31.6	21	0	2	0	0	0	23	
13:45	21	0	3	0	0	0	0	24	22	0	2	0	0	0	24	
14:00	15	0	4	0	0	0	0	19	18	1	4	0	0	0	23.2	
14:15	26	0	3	2.3	0	0	0	31.3	11	0	1	0	0	0	12	
14:30	27	0	6	2.3	0	0	0	35.3	17	1	1	0	0	0	19	
14:45	28	0	1	2.3	0	0	0	31.3	21	0	3	0	0	0	24	
15:00	29	0	2	6.9	0	0	0	37.9	17	0	4	6.9	0	0	27.9	
15:15	38	0	5	0	0	0	0	43	24	0	2	4.6	0	0	30.8	
15:30	25	0	2	2.3	0	0	0	29.3	32	2	5	4.6	0	0	43.6	
15:45	31	0	10	0	0	0	0	41	31	0	5	0	0	0	36	
16:00	37	0	5	6.9	0	0	0	48.9	25	0	4	0	0	0	29	
16:15	43	0	9	0	0	0	0	52	28	0	2	0	0	0	30	
16:30	38	1	8	0	2	0	0	49	21	0	2	0	0	0	26	
16:45	65	0	7	0	0	0	0	72	21	0	5	0	0	0	33	
17:00	41	0	11	0	0	0	0	52	26	0	10	0	0	0	36	
17:15	52	0	10	0	0	0.4	0	62.4	27	0	4	0	0	0	31	
17:30	74	1	10	2.3	2	0	0	89.3	26	0	5	0	0	0	31	
17:45	55	1	8	0	0	0	0	84	27	0	2	0	0	0	29	
18:00	51	1	7	0	0	0	0	59	29	0	9	2.3	0	0	40.3	
18:15	54	0	4	0	0	0	0	58	25	2	3	0	0	0	30	
18:30	40	0	3	0	0	0.4	0	43.4	31	0	3	0	0	0	34	
18:45	39	0	2	0	0	0	0	41	20	0	1	0	0	0	21	
	74	0.00														



Site No. 5
Location R157(N) / Dillaw's Road / R157(S)
Date Tuesday 28 May 2019

Time	To Arm C - R157(S)					From Arm C - R157(S)					Veh. Total				
	CAR	Tot	GV	HGV	PSV	CAR	Tot	GV	HGV	PSV	CAR	Tot	GV	HGV	PSV
7:00	50	0	6	2.3	0	23	0	4	4.6	0	58.5	0	0	0	0
7:15	53	1	6	4.6	0	25	0	5	4.6	2	64.6	0	0	0	0
7:30	54	0	6	2.3	0	36	0	2	9.2	0	62.3	0	0	0	0
7:45	70	0	3	2.3	0	48	0	7	6.9	2	75.3	0	0	0	0
8:00	66	0	7	6.9	0	38	0	3	13.8	0	79.9	0	0	0	0
8:15	56	0	5	6.9	0	35	0	2	2.3	0	67.9	0	0	0	0
8:30	77	0	10	6.9	0	45	1	7	4.6	0	93.9	0	0	0	0
8:45	67	0	3	4.6	0	45	1	4	18.4	2	74.6	0	0	0	0
9:00	46	1	2	11.5	0	40	0	5	18.4	0	60.5	0	0.4	0	0
9:15	43	0	2	2.3	0	28	2	4	4.6	0	47.3	0	0	0	0
9:30	53	1	4	16.1	6	26	1	1	2.3	2	80.1	0	0	0	0
9:45	43	0	3	18.4	0	18	0	1	4.6	2	64.4	0	0	0	0.2
10:00	33	0	5	4.6	4	16	1	4	4.6	0	46.6	0	0	0	0
10:15	30	0	6	6.9	0	20	0	8	6.9	0	42.9	0	0	0	0
10:30	19	0	0	2.3	0	21	0	4	6.9	0	21.3	0	0	0.2	0
10:45	34	0	4	4.6	0	20	0	2	0	0	42.6	0	0	0	0
11:00	25	0	5	4.6	0	17	0	2	6.9	0	34.6	0	0	0	0.25
11:15	36	0	3	9.2	0	27	1	1	4.6	0	48.2	0	0	0	0
11:30	21	0	2	4.6	2	0	0	0	9.2	0	29.6	0	0	0	0.40
11:45	28	1	2	4.6	0	28	0	2	6.9	0	35.6	0	0	0	0
12:00	29	0	2	4.6	0	44	0	1	2.3	0	35.6	0	0	0	0
12:15	23	0	2	9.2	0	32	0	3	20.7	0	34.2	0	0	0	0
12:30	40	2	3	11.5	0	34	2	2	11.5	0	56.5	0	0	0	0
12:45	23	0	2	6.9	0	33	1	3	4.6	0	31.9	0	0	0	0.41
13:00	22	0	4	6.9	0	39	0	3	16.1	0	32.9	0	0	0	0
13:15	30	0	1	4.6	0	40	1	2	13.8	0	35.6	0	0	0	0
13:30	34	1	2	6.9	0	36	2	5	9.2	2	43.9	0	0	0	0.54
13:45	26	0	3	2.3	0	31	0	6	9.2	4	31.3	0	0	0	0
14:00	37	1	2	11.5	2	43	0	6	2.3	0	53.5	0	0	0	0.02
14:15	30	0	3	4.6	0	34	0	6	2.3	0	37.8	0	0	0	0
14:30	32	0	2	9.2	0	40	1	2	2.3	0	43.2	0	0	0	0
14:45	29	0	3	0	0	80	1	2	13.8	2	32.4	0	0	0	0.98
15:00	37	0	2	11.5	0	59	1	3	9.2	0	50.5	0	0	0	0.72
15:15	41	1	3	6.9	0	45	1	8	9.2	4	51.9	0	0	0	0
15:30	19	1	1	11.5	0	51	0	4	4.6	0	32.5	0	0.4	0	0
15:45	62	0	7	2.3	4	52	0	10	4.6	0	75.3	0	0	0	0.66
16:00	42	0	8	9.2	0	56	0	12	4.6	0	60	0	0	0	0
16:15	47	0	7	2.3	0	66	0	11	2.3	0	56.3	0	0	0	0
16:30	48	0	4	0	0	62	1	13	0	0	52.4	0	0.4	0	0
16:45	49	0	3	2.3	0	78	0	5	0	0	54.3	0	0	0	0
17:00	30	0	6	2.3	0	83	0	14	9.2	0	38.7	0	0.4	0	0
17:15	62	0	9	2.3	0	84	0	5	6.9	0	73.3	0	0	0	0
17:30	63	0	3	0	0	105	0	7	6.9	0	66	0	0	0	0
17:45	63	0	4	0	0	67	0	6	0	0	67	0	0	0	0
18:00	39	0	9	2.3	0	95	0	16	4.6	0	50.3	0	0	0.2	0
18:15	34	0	7	4.6	0	85	0	5	0	0	45.6	0	0	0	0
18:30	44	1	4	0	0	57	0	5	2.3	0	49	0	0	0	0
18:45	35	1	6	0	0	52	0	7	4.6	0	42	0	0	0.2	0



Site No. 6
Location R157 / R148(W) / R148(E)
Date Tuesday 28 May 2019

Time	A to C - R157 to R148(E)					A to B - R157 to R148(W)					Veh. Total				
	CAR	Tot	GV	HGV	PSV	CAR	Tot	GV	HGV	PSV	CAR	Tot	GV	HGV	PSV
7:00	47	0	5	1	0	10	0	1	0	0	48	0	0	0	0
7:15	41	1	2	2	0	8	0	3	1	0	53	0	0	0	0
7:30	42	0	5	0	0	12	0	4	0	0	47	0	0	0	0
7:45	52	0	1	1	0	18	0	2	1	0	54	0	0	0	0
8:00	42	0	4	1	0	20	0	1	2	0	47	0	0	0	0
8:15	44	0	1	3	0	12	0	4	1	0	48	0	0	0	0
8:30	58	0	8	4	0	19	0	3	0	0	70	0	0	0	0
8:45	35	0	1	2	0	31	0	2	0	0	38	0	0	0	0
9:00	27	1	5	1	0	22	0	1	0	0	34	0	0	0	0
9:15	22	0	0	1	0	21	0	2	0	0	23	0	0	0	0
9:30	36	2	3	6	0	16	0	1	0	1	47	0	0	0	0
9:45	21	0	2	2	7	24	0	1	0	2	32	0	0	1	0
10:00	18	0	2	2	2	16	0	3	0	0	24	0	0	0	0
10:15	12	0	5	2	0	19	0	1	1	0	18	0	0	0	0
10:30	4	0	0	1	0	15	0	0	0	0	5	0	0	0	0
10:45	10	0	1	1	0	12	0	3	0	0	12	0	0	0	0
11:00	10	0	4	1	0	21	0	1	0	0	15	0	0	0	0
11:15	18	0	2	4	0	18	1	0	0	0	24	0	0	0	0
11:30	5	0	2	1	0	12	0	0	1	0	8	0	0	0	0
11:45	11	1	1	1	0	18	1	1	1	0	14	0	0	0	0
12:00	14	0	0	2	0	15	0	2	0	0	16	0	0	0	0
12:15	13	0	1	1	0	14	0	1	1	0	15	0	0	0	0
12:30	11	1	3	5	0	22	0	1	2	0	20	0	0	0	0
12:45	6	0	1	1	0	19	0	1	1	0	8	0	0	0	0
13:00	5	0	2	1	3	18	0	2	0	0	11	0	0	0	0
13:15	11	0	0	2	0	21	0	1	0	0	13	0	0	0	0
13:30	17	1	2	3	0	16	0	0	0	0	23	0	0	0	0
13:45	8	0	0	1	0	21	0	1	0	0	9	0	0	0	0
14:00	14	0	3	4	0	21	1	1	1	0	21	0	0	0	0
14:15	7	0	1	3	0	22	0	2	0	0	12	0	0	0	0
14:30	14	0	2	4	0	20	1	0	0	0	20	0	0	0	0
14:45	14	1	0	0	0	16	0	3	0	0	16	0	0	0	0
15:00	15	0	4	0	0	23	0	0	0	0	19	0	0	0	0
15:15	19	2	4	3	0	24	0	1	0	0	28	0	0	0	0
15:30	7	1	0	2	0	10	0	1	1	0	10	0	0	0	0
15:45	22	0	6	1	2	38	0	0	1	0	31	0	0	0	0
16:00	21	0	5	3	0	17	0	3	2	0	30	0	1	1	0
16:15	16	0	6	1	0	31	0	2	0	0	23	0	0	0	0
16:30	27	1	2	0	0	24	0	2	0	0	30	0	0	0	0
16:45	15	0	2	1	0	35	0	0	0	0	18	0	0	0	0
17:00	20	0	6	1	0	29	0	2	0	0	27	0	0	0	0
17:15	28	0	8	0	0	36	0	0	0	0	36	0	0	0	0
17:30	37	0	3	1	0	41	0	0	0	0	41	0	0	0	0
17:45	30	0	0	0	0	52	0	3	0	0	30	0	0	0	0
18:00	17	0	2	0	0	19	0	6	2	0	19	0	0	0	0
18:15	20	5	1	0	0	26	14	0	3	1	26	14	0	0	0
18:30	24	1	2	0	0	27	18	0	1	0	27	18	0	0	0
18:45	23	1	5	0	0	29	12	0	2	0	29	12	0	0	0
Total	1030	19	121	81	14	934	3	76	20	5	1270	934	3	76	20

Site No. 6
Location R157 / R148(W) / R148(E)
Date Tuesday 28 May 2019

Time	CAR	Tot	LGW	HGV	PSV	M/C	P/C	CAR	Tot	LGW	HGV	PSV	M/C	P/C	Veh. Total
7:00	26	0	4	0	1	0	0	33	0	2	2	0	0	0	15
7:15	22	1	4	0	1	0	0	29	1	3	2	0	0	0	18
7:30	27	0	2	1	2	0	0	32	0	0	0	0	0	0	17
7:45	33	0	5	1	0	0	0	40	0	6	3	0	0	0	40
8:00	27	0	4	3	1	0	0	35	0	2	6	0	0	0	21
8:15	59	0	4	0	1	0	0	64	0	2	4	0	0	0	26
8:30	62	1	0	2	2	0	1	68	1	3	3	1	0	0	27
8:45	83	2	5	2	1	0	0	93	2	0	3	4	0	0	28
9:00	50	1	1	1	0	0	0	53	1	0	0	0	0	0	23
9:15	49	1	7	1	0	0	0	59	1	0	2	0	0	0	17
9:30	61	0	7	0	2	0	1	71	0	1	0	1	0	0	11
9:45	57	1	6	2	0	0	1	67	1	0	1	0	0	0	12
10:00	53	0	2	1	1	0	0	57	0	2	2	1	0	0	6
10:15	52	0	2	0	1	0	0	55	0	2	3	0	0	0	14
10:30	40	0	5	0	2	0	6	53	0	3	3	0	0	0	16
10:45	52	0	4	2	0	0	0	58	0	2	0	0	0	0	8
11:00	46	0	2	1	1	0	0	51	0	1	1	0	0	0	6
11:15	57	0	4	1	1	1	0	64	0	1	1	0	0	0	15
11:30	58	4	4	0	2	0	0	68	4	0	4	0	0	0	14
11:45	61	2	7	2	0	0	0	72	15	0	3	2	0	0	20
12:00	52	0	4	0	1	0	0	62	15	0	2	0	0	0	19
12:15	55	0	4	0	1	1	0	61	11	0	6	0	0	0	18
12:30	81	0	8	1	2	0	1	93	11	1	2	4	0	0	18
12:45	58	0	1	1	1	7	1	69	7	0	3	0	0	0	13
13:00	66	0	4	1	1	0	0	72	0	2	4	0	0	0	22
13:15	73	2	4	0	1	0	0	79	16	0	1	3	0	0	20
13:30	56	2	2	4	4	0	0	68	17	1	3	4	0	0	25
13:45	51	0	3	0	1	0	1	56	9	0	2	2	0	0	13
14:00	55	0	6	3	0	1	0	65	0	3	1	0	0	0	20
14:15	76	0	5	0	1	0	1	83	18	0	1	0	0	0	19
14:30	49	1	8	1	3	0	0	63	11	0	0	0	0	0	12
14:45	53	1	8	3	0	0	0	67	31	2	4	0	0	0	37
15:00	75	2	3	1	1	0	0	82	10	0	1	2	0	0	15
15:15	76	0	7	2	0	0	0	86	12	0	0	1	0	0	14
15:30	67	0	4	1	2	0	0	74	12	1	0	0	0	0	38
15:45	61	1	2	0	1	0	1	66	32	0	6	0	0	0	35
16:00	69	1	7	0	1	2	0	80	36	0	2	0	0	0	42
16:15	72	1	4	0	2	0	1	82	33	0	8	1	0	0	51
16:30	75	1	4	0	2	0	1	83	43	0	7	1	0	0	60
16:45	83	0	4	0	1	0	2	90	57	0	3	0	0	0	64
17:00	85	0	4	0	0	0	1	90	52	0	9	3	0	0	57
17:15	74	2	5	1	2	0	0	84	50	0	3	4	0	0	69
17:30	80	2	6	1	1	0	1	91	64	0	4	1	0	0	40
17:45	81	0	6	0	4	0	1	92	35	0	3	0	0	0	2
18:00	70	0	5	0	0	1	2	78	55	0	12	2	0	0	69
18:15	63	0	2	0	1	1	2	69	42	0	3	0	0	0	45
18:30	78	0	5	0	3	0	1	87	36	0	4	1	0	0	41
18:45	68	0	4	0	1	2	4	79	28	0	3	1	0	1	35
25:75	2579	28	219	44	54	19	34	3277	1028	11	131	103	5	4	1253

Site No. 1
Location R157 / R148(W) / R148(E)
Date Tuesday 28 May 2019

Time	CAR	Tot	LGW	HGV	PSV	M/C	P/C	CAR	Tot	LGW	HGV	PSV	M/C	P/C	Veh. Total
7:00	9	0	2	0	0	0	0	11	0	0	0	0	0	0	108
7:15	15	0	3	0	1	0	0	19	80	2	8	1	4	0	94
7:30	18	0	1	0	0	0	0	19	84	1	8	1	5	0	101
7:45	17	0	0	1	1	0	0	19	76	2	3	1	2	0	90
8:00	19	0	1	1	0	0	0	21	57	0	3	1	3	0	67
8:15	14	0	1	4	0	0	0	19	62	0	3	0	2	0	69
8:30	16	0	3	0	0	0	0	19	60	2	5	0	1	0	69
8:45	17	1	0	2	0	0	0	20	50	0	3	1	1	0	56
9:00	20	0	2	1	0	0	0	23	59	0	0	0	0	0	45
9:15	14	0	1	0	0	0	0	15	34	0	6	0	1	0	42
9:30	10	0	1	0	0	0	1	11	51	0	6	1	2	0	61
9:45	10	0	1	0	0	0	1	12	47	1	5	1	1	0	55
10:00	9	0	2	0	0	0	0	11	33	0	2	0	3	0	39
10:15	12	0	2	0	0	0	0	14	51	0	3	0	0	0	59
10:30	13	0	1	0	0	0	0	14	56	1	3	1	2	0	63
10:45	16	0	0	0	0	0	0	16	78	2	1	0	0	2	84
11:00	13	0	0	3	0	0	0	16	33	1	5	2	3	1	65
11:15	18	1	0	0	0	0	0	20	60	1	6	0	0	0	67
11:30	16	0	0	0	0	0	0	16	63	1	6	1	2	0	75
11:45	19	0	0	0	0	0	0	19	61	1	4	3	1	0	61
12:00	22	0	0	0	0	0	0	22	36	1	5	1	3	1	69
12:15	19	0	2	2	0	0	1	24	53	1	6	3	0	0	64
12:30	24	0	1	0	0	0	0	25	63	1	9	0	2	0	75
12:45	26	0	1	0	0	0	0	29	63	0	11	2	0	0	74
13:00	25	1	0	2	0	0	0	28	68	0	6	0	3	0	79
13:15	22	0	1	2	0	0	0	25	64	1	6	0	0	0	73
13:30	17	1	3	1	1	0	0	23	58	1	3	2	0	0	66
13:45	25	0	3	1	2	0	0	31	89	0	2	2	3	1	97
14:00	29	0	1	0	0	0	0	30	71	0	9	3	3	7	94
14:15	25	0	6	0	0	0	0	31	74	0	8	3	0	0	85
14:30	27	0	2	1	1	0	0	30	65	0	9	3	1	0	73
14:45	54	0	2	1	0	0	0	57	82	1	5	2	0	0	90
15:00	39	0	1	1	0	0	0	41	70	1	7	1	3	0	82
15:15	24	2	3	2	0	0	0	31	70	3	3	0	0	1	78
15:30	27	0	3	2	0	0	0	33	62	0	3	3	1	0	69
15:45	22	0	5	1	0	0	0	28	65	0	3	0	1	0	69
16:00	30	0	4	0	0	0	0	34	59	1	2	0	0	0	62
16:15	24	0	3	0	0	0	0	29	60	0	5	0	0	1	67
16:30	38	0	2	0	0	0	0	40	59	0	7	0	2	1	69
16:45	20	0	1	0	0	0	0	21	79	5	5	0	0	1	90
17:00	31	0	5	1	0	0	0	37	101	0	9	1	2	3	117
17:15	39	0	2	0	0	0	0	41	94	0	2	0	0	0	96
17:30	49	0	1	1	0	0	0	51	79	1	4	0	0	1	85
17:45	51	0	2	0	0	0	0	53	83	1	4	0	3	0	91
18:00	45	0	4	0	0	0	1	50	76	0	5	0	2	0	84
18:15	38	0	2	0	0	0	0	40	71	0	2	1	0	0	74
18:30	25	0	2	0	0	0	1	28	68	0	3	1	1	0	74
18:45	22	0	4	1	0	0	0	27	59	1	4	0	0	2	66
25:75	1128	6	85	33	6	1	5	1244	3184	35	239	44	69	25	28



Site No. 6
Location R157 / R148(W) / R148(E)
Date Tuesday 28 May 2019

Time	To Arm A - R157							From Arm A - R157							Veh. Total	
	CAR	Taxi	LGV	HGV	PSV	M/C	P/C	CAR	Taxi	LGV	HGV	PSV	M/C	P/C		
7:00	20	0	4	2	0	0	0	26	51	0	6	1	0	0	1	59
7:15	28	0	6	2	1	0	0	37	55	1	5	3	0	0	2	46
7:30	34	0	2	0	0	0	0	36	54	0	9	0	0	0	0	63
7:45	48	0	6	4	1	0	0	59	70	0	3	2	0	0	0	75
8:00	32	0	3	7	0	0	0	42	62	0	5	3	0	0	0	70
8:15	34	0	3	8	0	0	0	45	56	0	5	4	0	0	0	65
8:30	35	1	6	3	1	0	0	46	77	0	11	4	0	0	0	92
8:45	38	1	3	6	0	0	0	48	66	0	3	2	0	0	0	71
9:00	36	0	5	5	0	0	0	46	49	1	6	1	0	0	0	57
9:15	27	2	1	2	0	0	0	32	43	0	2	1	0	0	0	46
9:30	18	1	1	1	0	0	0	22	52	2	4	6	1	0	0	65
9:45	18	0	2	2	1	0	0	24	45	0	3	2	9	0	1	60
10:00	13	0	4	2	0	0	0	19	34	0	5	2	2	0	0	43
10:15	21	0	4	3	0	0	0	29	30	0	6	3	0	0	0	39
10:30	23	0	4	3	0	0	0	30	19	0	0	1	0	0	0	20
10:45	22	0	2	0	0	0	0	24	28	0	4	1	0	0	1	34
11:00	17	0	1	4	0	0	0	22	31	0	5	1	0	0	0	37
11:15	31	1	1	2	0	0	0	35	36	1	2	4	0	0	0	43
11:30	25	1	0	4	0	0	0	30	17	0	2	2	1	0	0	22
11:45	34	0	3	2	0	0	0	39	29	2	2	2	0	0	0	35
12:00	37	0	2	2	0	0	0	41	29	0	2	2	0	0	0	33
12:15	30	0	3	8	0	0	0	42	27	0	2	2	0	0	0	31
12:30	35	1	3	4	0	0	0	43	33	1	4	7	0	0	0	45
12:45	35	0	3	4	0	0	0	42	25	0	2	2	0	0	0	29
13:00	41	1	2	6	0	0	0	50	23	0	4	1	3	0	0	31
13:15	38	0	2	5	0	0	0	45	32	0	1	2	0	0	0	35
13:30	34	2	6	5	1	0	0	48	33	1	2	3	0	0	0	39
13:45	34	0	5	3	2	0	0	44	29	0	1	1	0	0	0	31
14:00	45	0	4	1	0	0	0	50	35	1	4	4	1	0	0	45
14:15	33	0	6	1	0	0	0	40	29	0	3	3	0	0	0	36
14:30	38	1	1	1	0	0	0	42	31	0	2	4	0	0	0	37
14:45	85	2	2	5	0	0	0	94	29	1	3	0	0	0	0	34
15:00	49	0	2	3	0	0	0	54	38	0	0	5	0	0	0	43
15:15	36	2	3	3	2	0	0	46	43	2	5	3	0	0	0	53
15:30	39	1	3	3	0	0	0	47	17	1	1	3	0	0	0	22
15:45	54	0	11	1	0	0	0	66	60	0	6	2	2	0	0	70
16:00	60	0	10	2	0	0	0	72	38	0	8	5	0	0	0	54
16:15	59	0	11	1	0	0	0	71	47	0	8	1	0	0	0	56
16:30	81	0	9	1	0	0	0	91	51	1	4	0	0	0	0	57
16:45	77	0	4	0	0	0	0	81	50	0	2	1	0	0	0	53
17:00	83	0	14	4	0	0	0	101	31	0	7	1	0	0	0	39
17:15	89	0	5	4	0	0	0	98	57	0	10	0	0	0	0	67
17:30	113	0	5	2	0	0	0	120	64	0	3	1	0	0	0	68
17:45	86	0	5	0	0	0	0	93	62	0	3	0	0	0	0	65
18:00	100	0	16	2	0	0	0	119	36	0	8	2	0	0	0	46
18:15	80	0	5	0	0	0	0	85	34	5	4	1	0	0	0	44
18:30	61	0	6	1	0	0	0	69	42	1	3	0	0	0	0	46
18:45	50	0	7	2	0	0	0	62	35	1	7	0	0	0	0	43
25:75	2156	17	216	136	11	2	9	2547	1964	22	197	101	19	3	8	2314



Site No. 6
Location R157 / R148(W) / R148(E)
Date Tuesday 28 May 2019

Date	Time	To Arm B - R148(W)										From Arm B - R148(W)										Veh. Total
		CAR	Taxi	LGV	HGV	PSV	M/C	P/C	Total	CAR	Taxi	LGV	HGV	PSV	M/C	P/C	Total					
JULY 28 MON 2017	7:00	36	0	5	2	1	0	0	44	101	0	10	1	5	2	0	119					
	7:15	30	1	7	1	1	1	42	95	2	9	0	5	0	2	113						
	7:30	39	0	6	1	2	0	0	48	104	1	9	1	5	0	0	120					
	7:45	51	0	7	2	0	0	1	61	95	2	3	2	3	0	4	109					
	8:00	47	0	5	5	1	0	0	58	76	0	4	2	3	0	3	88					
	8:15	71	0	8	1	1	0	0	81	76	0	4	4	2	0	2	88					
	8:30	81	1	3	2	2	0	1	90	76	2	8	0	1	0	1	88					
	8:45	114	2	7	2	1	0	0	126	67	1	3	3	1	1	0	76					
	9:00	72	1	2	1	0	0	0	76	79	1	6	1	1	0	0	88					
	9:15	70	1	9	1	0	0	1	82	48	0	7	0	1	1	0	57					
	9:30	77	0	8	0	3	0	0	89	61	0	7	1	2	1	0	72					
	9:45	81	1	7	2	2	0	2	95	57	1	6	1	1	0	1	67					
	10:00	69	0	5	1	1	0	0	76	42	0	4	0	3	1	0	50					
	10:15	70	0	7	1	0	0	1	79	63	0	7	3	0	0	1	74					
	10:30	55	0	5	0	2	0	6	68	69	1	4	1	2	0	0	77					
	10:45	70	0	7	2	0	1	0	80	94	2	1	1	1	0	0	100					
	11:00	67	0	3	1	1	1	0	73	66	1	5	5	3	1	0	81					
	11:15	75	1	4	1	1	1	0	83	78	2	6	1	0	0	0	87					
	11:30	70	4	4	1	3	0	0	82	79	1	8	1	2	0	0	91					
	11:45	79	3	8	3	0	0	0	93	70	1	4	3	1	0	1	80					
12:00	67	0	9	2	1	0	0	79	80	1	5	1	3	1	0	91						
12:15	69	0	5	1	1	1	0	77	72	1	8	5	0	0	2	88						
12:30	103	0	9	3	2	0	1	118	87	1	10	0	2	0	0	100						
12:45	77	0	2	2	1	7	1	90	91	0	11	3	0	0	0	105						
13:00	84	0	6	1	1	0	0	92	113	1	6	2	3	0	0	125						
13:15	94	2	5	0	0	0	0	101	86	1	8	3	0	0	0	98						
13:30	72	2	2	4	4	0	0	84	75	2	6	3	1	0	2	89						
13:45	72	0	4	0	1	0	1	78	114	0	5	3	5	1	0	128						
14:00	76	1	7	3	1	1	0	89	100	0	10	3	3	7	1	124						
14:15	98	0	7	0	1	0	1	107	89	0	14	3	0	0	0	106						
14:30	46	1	9	1	3	0	0	80	92	0	8	1	2	0	0	103						
14:45	70	1	11	3	0	0	0	85	136	1	7	3	0	0	0	147						
15:00	98	2	3	2	1	0	0	106	109	1	8	2	3	0	0	123						
15:15	100	0	8	2	0	0	1	111	94	5	6	2	0	1	1	109						
15:30	77	0	5	2	2	0	0	86	89	0	6	5	1	1	0	102						
15:45	99	1	2	1	1	0	1	105	87	0	8	1	1	0	0	97						
16:00	86	1	10	2	1	3	1	104	89	1	6	0	0	0	0	96						
16:15	103	0	9	0	1	1	1	115	86	0	8	0	0	1	1	96						
16:30	99	1	6	0	2	1	1	110	97	0	9	0	0	2	1	109						
16:45	118	0	4	0	1	0	2	125	99	5	6	0	0	0	1	111						
17:00	96	0	5	0	0	0	1	102	132	0	14	2	2	3	1	154						
17:15	103	2	7	1	2	0	0	115	133	0	4	0	0	0	0	137						
17:30	107	2	6	1	1	0	1	118	128	1	3	1	0	1	2	136						
17:45	113	0	9	0	4	0	1	127	134	1	6	0	3	0	0	144						
18:00	89	0	11	2	0	1	2	105	121	0	10	0	2	2	1	136						
18:15	77	0	5	1	1	1	2	87	109	0	4	1	0	0	0	114						
18:30	96	0	6	0	3	0	1	106	93	0	5	1	1	0	2	102						
18:45	80	0	6	0	1	2	4	93	81	1	8	1	0	0	2	93						
18:55	3813	31	245	64	59	21	56	4921	4312	41	304	77	74	74	74	73						



Site No. 6
Location R157 / R148(W) / R148(E)
Date Tuesday 28 May 2019

10084 / Moygaddy
May 2019
Junction Turning Count

Time	To Arm C - R148(E)						From Arm C - R148(E)						Veh. Total	From Arm C - R148(E)						Veh. Total
	CAE	Tol	LG	PSV	M/C	P/C	CAE	Tol	LG	PSV	M/C	P/C		CAE	Tol	LG	PSV	M/C	P/C	
7:00	133	0	13	2	5	2	136	37	0	6	4	0	0	48	0	4	1	0	0	
7:15	127	3	8	2	4	3	147	35	1	7	2	1	1	47	0	7	2	1	0	
7:30	128	1	13	1	5	0	149	43	0	3	1	2	0	49	0	3	1	2	0	
7:45	130	2	4	2	2	0	144	64	0	11	4	0	0	50	0	11	4	0	0	
8:00	99	0	7	2	3	0	114	40	0	6	9	1	0	54	0	6	9	1	0	
8:15	106	0	4	3	2	0	117	79	0	6	4	1	0	60	0	6	4	1	0	
8:30	118	2	13	4	1	0	139	81	2	3	5	3	0	61	0	3	5	3	0	
8:45	85	0	4	3	1	0	94	104	2	8	6	1	0	125	0	8	6	1	0	
9:00	85	2	9	1	1	0	99	64	1	4	3	0	0	76	0	4	3	0	0	
9:15	5	6	1	1	1	0	65	62	3	7	3	0	0	76	0	7	3	0	0	
9:30	87	2	9	7	2	1	108	69	1	7	4	1	3	82	0	7	4	1	3	
9:45	68	1	7	3	8	0	87	65	1	7	4	1	3	79	0	7	4	1	3	
10:00	31	0	4	2	8	0	63	59	0	4	3	1	0	55	0	4	3	1	0	
10:15	63	0	10	5	0	0	78	61	0	8	3	0	0	73	0	8	3	0	0	
10:30	40	1	3	2	2	0	68	50	0	8	3	0	0	69	0	8	3	0	0	
10:45	88	2	2	2	0	2	96	58	0	6	2	0	0	66	0	6	2	0	0	
11:00	63	1	9	3	3	1	89	50	0	3	2	1	0	57	0	3	2	1	0	
11:15	78	1	8	4	0	0	91	70	0	5	2	1	1	79	0	5	2	1	1	
11:30	68	1	10	2	2	0	83	67	5	4	4	2	0	82	0	4	4	2	0	
11:45	62	2	5	4	1	0	75	76	2	10	4	0	0	92	0	10	4	0	0	
12:00	72	1	5	3	3	0	85	67	0	9	4	1	0	81	0	9	4	1	0	
12:15	66	1	7	4	0	0	79	66	0	5	6	1	1	79	0	5	6	1	1	
12:30	74	2	12	5	2	0	95	92	1	10	5	2	0	111	0	10	5	2	0	
12:45	69	0	12	3	0	0	84	65	0	4	5	1	0	94	0	4	5	1	0	
13:00	93	0	8	1	6	0	106	82	0	6	5	1	0	82	0	6	5	1	0	
13:15	75	1	7	3	0	0	86	69	2	5	3	0	0	99	0	5	3	0	0	
13:30	75	2	5	5	0	2	89	73	3	5	8	4	0	93	0	5	8	4	0	
13:45	97	0	2	3	3	1	101	60	0	5	2	1	0	69	0	5	2	1	0	
14:00	85	0	12	7	3	7	115	71	0	9	4	0	0	85	0	9	4	0	0	
14:15	81	0	9	6	0	0	97	94	0	5	4	0	0	102	0	5	4	0	0	
14:30	79	0	9	4	1	0	93	60	2	9	1	3	0	75	0	9	1	3	0	
14:45	96	2	5	2	0	1	104	86	3	8	7	0	0	104	0	8	7	0	0	
15:00	85	1	7	5	3	0	101	85	2	4	3	1	0	95	0	4	3	1	0	
15:15	89	5	7	5	0	1	106	88	0	7	3	2	0	101	0	7	3	2	0	
15:30	69	1	3	5	1	0	79	7	1	4	2	2	0	88	0	4	2	2	0	
15:45	87	0	9	1	3	0	100	93	1	6	0	1	0	104	0	6	0	1	0	
16:00	80	1	7	3	0	0	92	99	1	13	2	1	0	118	0	13	2	1	0	
16:15	76	0	11	1	0	1	90	105	0	15	1	1	1	124	0	15	1	1	1	
16:30	86	1	9	0	2	1	99	118	1	11	1	2	0	134	0	11	1	2	0	
16:45	94	5	7	1	0	0	108	140	0	7	0	1	0	150	0	7	0	1	0	
17:00	121	0	15	2	2	3	144	139	0	13	3	0	0	154	0	13	3	0	0	
17:15	122	0	10	0	0	0	132	124	2	8	5	2	0	141	0	8	5	2	0	
17:30	116	1	5	1	0	1	126	144	2	10	2	1	0	160	0	10	2	1	0	
17:45	113	4	0	0	3	0	121	116	0	9	0	4	0	132	0	9	0	4	0	
18:00	93	0	6	0	2	0	105	125	0	17	2	0	0	147	0	17	2	0	0	
18:15	91	5	3	1	0	0	100	105	0	5	0	1	2	114	0	5	0	1	2	
18:30	92	1	5	1	0	1	101	114	0	9	1	3	0	128	0	9	1	3	0	
18:45	82	2	9	0	0	2	95	96	0	7	1	1	3	114	0	7	1	1	3	
25:75	421.4	54	360	125	83	26	4894	3907	39	350	147	59	20	4540	38	350	147	59	20	

CAR TAXI LGV HGV PSV M/C P/C
1 1 1 2.3 2 0.4 0.2



Site No. 6
Location R157 / R148(W) / R148(E)
Date Tuesday 28 May 2019

10084 / Moygaddy
May 2019
Junction Turning Count

TUESDAY - MIDY 2017													Veh.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Time	A to C - R157 to R148(E)						P/C						Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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7:00	41	0	5	2.3	0	0	0.2	48.5	10	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Site No. 6
Location R157 / R148(W) / R148(E)
Date Tuesday 28 May 2019

Time	B to A - R148(W) to R157						B to C - R148(W) to R148(E)						Veh. Total
	CAR	Tot	LCV	HGV	PSV	P/C	CAR	Tot	LCV	HGV	PSV	P/C	
7:00	9	0	2	0	0	0	92	0	8	23	10	0.8	113.1
7:15	15	0	3	0	2	0	80	2	6	0	8	0.4	96.4
7:30	18	0	1	0	0	0	86	1	8	23	10	0	107.3
7:45	17	0	0	2.3	2	0	78	2	3	2.3	4	0.6	90.1
8:00	19	0	1	2.3	0	0	57	0	3	2.3	6	0.6	68.9
8:15	14	0	1	9.2	0	0	62	0	3	0	4	0.4	69.4
8:30	16	0	3	0	0	0	19	60	2	5	0	0.2	69.2
8:45	17	1	0	4.6	0	0	22.6	50	0	3	2.3	0.4	57.7
9:00	20	0	2	2.3	0	0	24.3	59	1	4	0	0	66
9:15	14	0	1	0	0	0	15	34	0	6	0	0.4	66.3
9:30	10	0	1	0	0	0	11	51	0	6	2.3	0.4	63.7
9:45	10	0	1	0	0	0	11	47	1	5	2.3	0	57.3
10:00	9	0	2	0	0	0	11	33	0	2	0	0.4	41.4
10:15	12	0	2	0	0	0	14.2	51	0	5	6.9	0	62.9
10:30	13	0	1	0	0	0	14	56	1	3	2.3	4	66.3
10:45	16	0	0	0	0	0	16	78	2	1	2.3	0	83.7
11:00	13	0	0	6.9	0	0	19.9	53	1	5	4.6	0.4	70
11:15	18	1	0	2.3	0	0	21.3	60	1	6	0	0	67
11:30	16	0	0	0	0	0	16	63	1	6	2.3	4	78.3
11:45	19	0	0	0	0	0	19	51	1	4	6.9	2	65.1
12:00	22	0	0	0	0	0	22	58	1	5	2.3	6	72.7
12:15	19	0	2	4.6	0	0.2	25.8	53	1	6	6.9	0	72.7
12:30	24	0	1	0	0	0	25	63	1	9	0	0	77
12:45	28	0	0	2.3	0	0	30.3	63	0	11	4.6	0	100
13:15	22	0	1	4.6	0	0	27.6	64	1	7	2.3	0	74.3
13:30	17	1	3	2.3	2	0	25.3	58	1	3	4.6	0	102
13:45	25	0	3	2.3	4	0	34.3	89	0	2	4.6	6	102
14:00	29	0	1	0	0	0	30	71	0	9	6.9	6	95.9
14:15	15	0	6	0	0	0	21	74	0	8	6.9	0	88.9
14:30	27	0	1	2.3	2	0	32.3	65	0	7	0	0	74
14:45	54	0	2	2.3	0	0	58.3	82	1	5	4.6	0	92.6
15:00	39	0	1	2.3	0	0	42.3	70	1	7	2.3	6	86.3
15:15	24	2	3	4.6	0	0.4	35	62	0	3	6.9	2	76.6
15:30	27	0	3	4.6	0	0	29.3	65	0	3	0	0	73.9
15:45	22	0	5	2.3	0	0	29.3	65	0	3	0	0	70
16:00	30	0	4	0	0	0	34	59	1	2	0	0	62
16:15	26	0	3	0	0	0	29	60	0	5	0	0.4	65.6
16:30	36	0	2	0	0	0	40	59	0	7	0	0.4	70.4
16:45	20	0	1	0	0	0	21	79	5	0	0	0.2	89.2
17:00	31	0	5	2.3	0	0	38.3	101	0	9	2.3	4	117.7
17:15	39	0	2	0	0	0	41	94	0	2	0	0	96
17:30	49	0	1	2.3	0	0	52.3	79	1	2	0	0.4	82.8
17:45	51	0	2	0	0	0	53	83	1	4	0	0	94
18:00	45	0	4	0	0	0.2	49.2	76	0	6	0	0.8	86.8
18:15	38	0	2	0	0	0	40	71	0	2	2.3	0	75.3
18:30	25	0	2	0	0	0.2	27.2	68	0	3	2.3	2	75.3
18:45	22	0	4	2.3	0	0	26.3	59	1	4	0	0.4	64.4
25:75	1128	6	85	75.9	12	0.4	1306.3	3184	35	239	101.2	138	3712.8



Site No. 6
Location R157 / R148(W) / R148(E)
Date Tuesday 28 May 2019

Time	C to B - R148(E) to R148(W)						C to A - R148(E) to R157						Veh. Total
	CAR	Tot	LCV	HGV	PSV	P/C	CAR	Tot	LCV	HGV	PSV	P/C	
7:00	26	0	4	4.6	2	0	11	0	2	4.6	0	0	17.6
7:15	22	1	4	0	2	0.4	0	0	3	4.6	0	0	20.6
7:30	27	0	2	2.3	4	0	35.3	16	0	1	0	0	17
7:45	33	0	5	2.3	0	0.2	40.5	13	0	6	6.9	0	43.9
8:00	27	0	4	6.9	2	0	39.9	13	0	2	13.8	0	28.8
8:15	59	0	4	0	2	0	65	20	0	2	9.2	0	31.2
8:30	62	1	0	4.6	4	0.2	71.8	19	1	3	6.9	2	31.9
8:45	83	2	5	4.6	2	0	96.6	21	0	3	9.2	0	33.2
9:00	40	1	1	2.3	0	0	54.3	16	0	3	9.2	0	28.2
9:15	49	1	7	2.3	0	0.2	59.5	13	2	0	4.6	0	19.6
9:30	61	0	7	0	4	0	72.2	8	1	0	2.3	2	13.3
9:45	57	1	6	4.6	0	0.2	68.8	8	0	1	4.6	2	15.6
10:00	53	0	2	2.3	2	0	59.3	4	0	2	4.6	0	10.6
10:15	52	0	6	0	0	0.2	58.2	9	0	2	6.9	0	17.9
10:30	40	0	5	0	4	0	50.2	10	0	3	6.9	0	19.9
10:45	52	0	4	4.6	0	0	60.6	6	0	2	0	0	8
11:00	46	0	2	2.3	2	0.4	52.7	4	0	1	2.3	0	7.3
11:15	57	0	4	2.3	2	0.4	65.7	13	0	1	2.3	0	16.3
11:30	58	4	4	0	4	0	70	9	1	0	9.2	0	19.2
11:45	61	2	7	4.6	0	0	74.6	15	0	3	4.6	0	22.6
12:00	52	0	7	4.6	2	0	65.6	15	0	2	4.6	0	21.6
12:15	55	0	4	0	2	0.4	61.4	11	0	1	13.8	0	25.8
12:30	81	0	8	2.3	4	0.2	95.5	11	1	2	9.2	0	23.2
12:45	58	0	1	2.3	2	2.8	66.3	7	0	3	6.9	0	16.9
13:00	66	0	4	2.3	2	0	74.3	16	0	2	9.2	0	27.2
13:15	73	2	4	0	0	0	79	16	0	1	6.9	0	23.9
13:30	56	2	2	9.2	8	0	77.2	17	1	3	9.2	0	30.2
13:45	51	0	3	0	2	0.2	56.2	9	0	2	4.6	0	15.6
14:00	55	0	6	6.9	0	0.4	68.3	16	0	3	2.3	0	21.3
14:15	76	0	5	0	2	0	83.2	18	0	0	2.3	0	20.3
14:30	49	1	9	2.3	6	0	67.3	11	1	0	0	0	12
14:45	55	1	8	6.9	0	0	70.9	31	2	0	9.2	0	42.2
15:00	75	2	3	2.3	2	0	84.3	10	0	1	4.6	0	15.6
15:15	76	0	7	4.6	0	0.2	87.8	12	0	0	2.3	4	18.3
15:30	67	0	4	2.3	4	0	77.3	12	1	0	2.3	0	15.3
15:45	61	1	2	0	2	0.2	66.2	32	0	6	0	0	38
16:00	69	1	7	0	2	0.8	79.8	30	0	6	4.6	0	40.6
16:15	72	0	7	0	2	0.4	81.6	33	0	8	2.3	0	43.3
16:30	75	1	4	0	4	0.2	84.2	43	0	7	2.3	0	52.3
16:45	83	0	4	0	2	0	89.4	57	0	3	0	0	60
17:00	85	0	4	0	0	0.2	89.2	52	0	9	6.9	0	67.9
17:15	74	2	5	2.3	4	0	87.3	50	0	3	9.2	0	62.2
17:30	80	2	6	2.3	2	0.2	92.5	64	0	4	2.3	0	70.3
17:45	81	0	6	0	8	0	95.2	35	0	0	0	0.4	36.4
18:00	70	0	5	0	0	0.4	75.8	55	0	12	4.6	0	71.6
18:15	63	0	2	0	2	0.4	67.8	42	0	3	0	0	45
18:30	78	0	5	0	6	0.2	89.2	36	0	4	2.3	0	42.3
18:45	68	0	4	0	2	0.8	75.6	28	0	3	2.3	0	34.1
25:75	2879	28	219	101.2	108	7.6	3349.5	1028	11	131	266.7	10	418.1

Site No. 6
Location R157 / R148(W) / R148(E)
Date Tuesday, 28 May, 2019

Time	To Arm A - R157				From Arm A - R157				Veh. Total
	CAR	Tot	GV	PSV	CAR	Tot	GV	PSV	
7:00	20	20	0	0	20	20	0	0	59.5
7:15	28	28	0	0	40.6	55	1	5	60.3
7:30	34	0	2	0	36	54	0	0	63
7:45	48	0	2	0	65.2	70	3	4.6	77.6
8:00	32	0	3	0	51.1	62	0	5.9	75.9
8:15	34	0	3	0	55.4	56	0	5	70.2
8:30	35	1	6	0	50.9	77	0	11	97.2
8:45	38	1	3	0	55.8	66	0	3	75.6
9:00	36	0	5	0	52.5	49	1	6	56.3
9:15	27	2	1	0	34.6	43	0	2	47.3
9:30	18	0	1	0	24.3	52	2	4	73.8
9:45	18	0	2	0	26.8	45	0	3	70.8
10:00	13	0	4	0	21.5	34	0	5	42.9
10:15	21	0	4	0	32.1	30	0	6	48.2
10:30	23	0	4	0	33.9	19	0	4	42.9
10:45	22	0	2	0	24	28	0	4	34.5
11:00	17	0	1	0	27.2	31	0	5	38.3
11:15	31	1	1	0	37.6	36	1	2	48.2
11:30	25	1	0	0	35.2	17	0	2	37.6
11:45	34	0	3	0	41.6	29	0	2	44.6
12:00	37	0	2	0	43.6	29	0	2	44.6
12:15	30	0	3	0	37.6	27	0	2	44.6
12:30	35	1	3	0	48.2	33	1	4	54.1
12:45	35	0	3	0	47.2	25	0	2	51.5
13:00	41	1	2	0	57.8	32	0	4	63.6
13:15	38	0	2	0	55.5	33	1	2	60.9
13:30	34	2	6	0	51.5	29	0	4	57.8
13:45	34	0	5	0	49.9	29	0	4	54.1
14:00	45	0	4	0	51.3	35	1	4	59.9
14:15	35	0	6	0	41.3	29	0	3	44.3
14:30	38	1	1	0	44.3	31	0	2	46.6
14:45	85	2	2	0	100.5	29	1	3	104.5
15:00	49	0	2	0	57.9	38	0	0	65.9
15:15	36	2	3	0	51.9	43	2	5	60.9
15:30	39	1	3	0	50.3	17	1	1	56.9
15:45	54	0	11	0	67.3	60	0	6	74.6
16:00	60	0	10	0	74.6	38	0	8	82.6
16:15	59	0	11	0	72.3	47	0	2	80.3
16:30	81	0	9	0	81	50	0	4	91.3
16:45	77	0	4	0	81	50	0	2	87.3
17:00	83	0	5	0	103.2	31	0	10	113.2
17:15	89	0	5	0	122.6	64	0	3	128.6
17:30	113	0	5	0	126.6	36	0	8	134.6
17:45	86	0	5	0	91.4	62	0	3	97.6
18:00	100	0	14	0	114.6	36	0	4	120.6
18:15	80	0	5	0	85	34	5	4	94.3
18:30	61	0	6	0	69.5	42	1	3	72.8
18:45	50	0	7	0	62.4	35	1	7	70.4
25:75	2156	17	216	22	2726.4	1964	22	197	2923.3
									2456.1

Site No. 6
Location R157 / R148(W) / R148(E)
Date Tuesday, 28 May, 2019

Time	To Arm B - R148(W)				From Arm B - R148(W)				Veh. Total
	CAR	Tot	GV	PSV	CAR	Tot	GV	PSV	
7:00	36	0	5	0	47.6	101	0	10	124.1
7:15	30	1	7	0	42.9	95	2	10	116.4
7:30	39	0	6	0	51.3	104	1	9	126.3
7:45	51	0	7	0	62.8	95	2	3	111.4
8:00	47	0	5	0	55.5	76	0	4.6	91.2
8:15	71	0	8	0	83.3	76	0	4	93.6
8:30	61	1	3	0	93.8	76	2	8	100.2
8:45	114	2	7	0	129.6	67	1	3	133.6
9:00	72	1	2	0	77.3	78	1	6	90.3
9:15	70	1	9	0	82.3	48	0	2	87.4
9:30	77	0	8	0	91.2	61	0	7	98.2
9:45	81	1	7	0	98	57	1	6	104.7
10:00	69	0	5	0	78.3	42	0	2	80.3
10:15	70	0	7	0	79.5	63	0	6	85.5
10:30	55	0	5	0	65.2	69	1	4	70.2
10:45	70	0	4	0	74.7	76	1	5	80.3
11:00	67	0	3	0	70.3	66	1	3	74.7
11:15	75	1	4	0	84.7	78	2	6	90.9
11:30	70	4	4	0	86.3	79	1	8	94.3
11:45	79	3	8	0	96.9	70	1	8	104.7
12:00	67	0	9	0	82.6	80	1	5	94.7
12:15	69	0	5	0	78.7	72	1	8	92.9
12:30	103	0	5	0	123.1	87	1	10	133.1
12:45	77	0	2	0	88.6	91	0	4	92.9
13:00	84	0	6	0	94.3	113	1	6	100.9
13:15	94	2	5	0	101	86	1	8	101.9
13:30	72	2	2	0	93.2	75	2	6	92.3
13:45	76	1	7	0	93.3	100	0	5	106.3
14:00	98	0	7	0	107.2	89	0	14	125.9
14:15	66	1	9	0	84.3	92	0	8	106.3
14:30	70	1	11	0	88.9	136	1	7	150.9
14:45	98	2	3	0	109.6	109	1	8	128.6
15:00	100	0	8	0	112.8	94	5	6	110.2
15:15	77	0	5	0	90.6	89	0	6	96.3
15:30	99	1	2	0	106.5	87	0	8	114.7
15:45	86	1	10	0	105	89	1	6	111.2
16:00	103	0	9	0	114.6	86	0	8	122.6
16:15	99	1	4	0	110.6	97	0	9	120.6
16:30	118	0	4	0	124.4	99	5	6	130.2
16:45	96	0	5	0	101.2	132	0	14	115.2
17:00	103	2	7	0	118.3	133	0	4	137
17:15	107	2	6	0	119.5	128	1	3	135.1
17:30	113	0	9	0	130.2	134	1	6	147
17:45	89	0	11	0	105.4	121	0	10	126
18:00	113	0	5	0	87.1	109	0	4	113.3
18:15	77	0	5	0	108.2	93	0	5	102.7
18:30	96	0	6	0	89.6	81	1	8	92.7
18:45	80	0	6	0	89.6	81	1	8	92.7
25:75	3813	31	295	118	4420.2	4312	41	324	5021.1

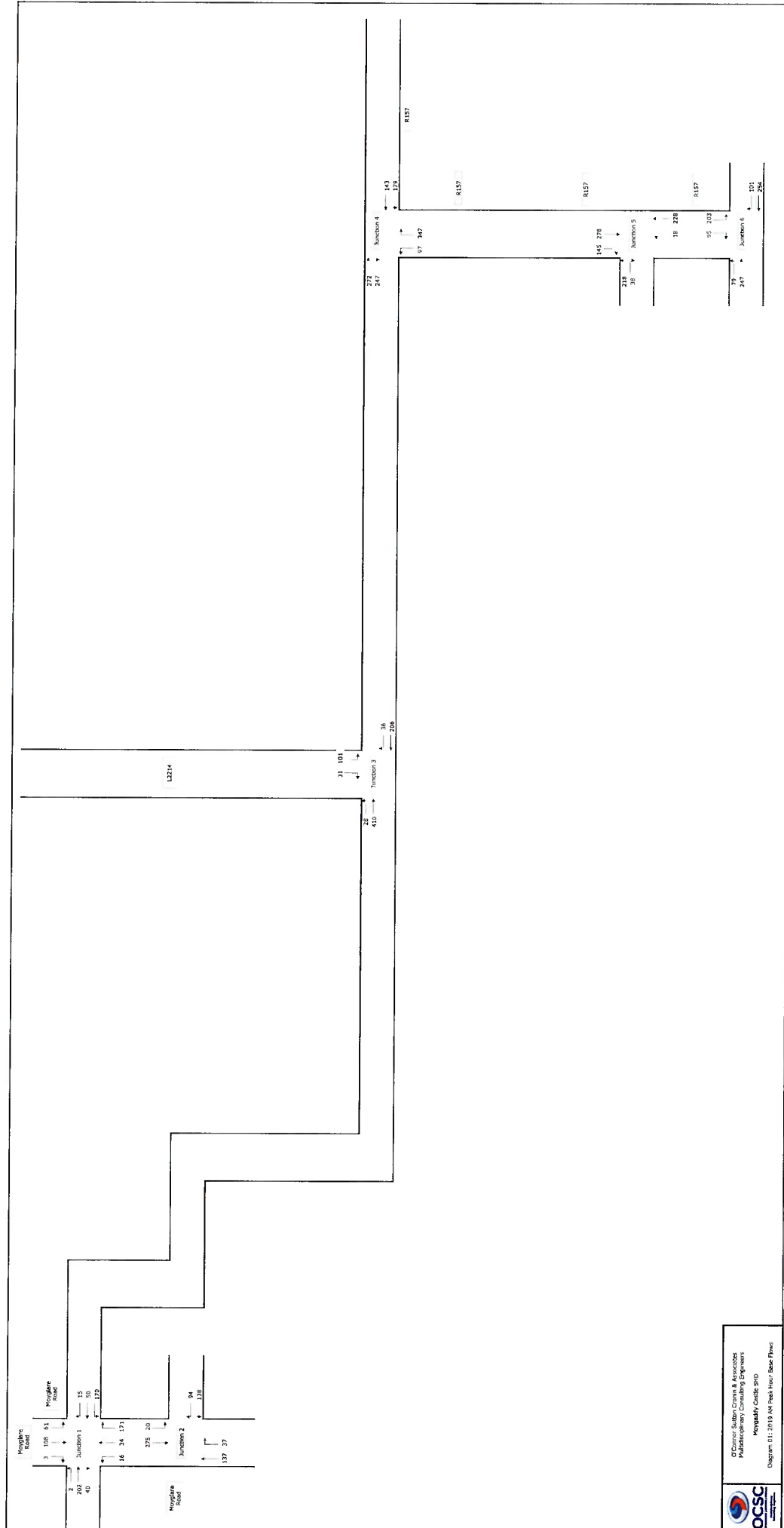


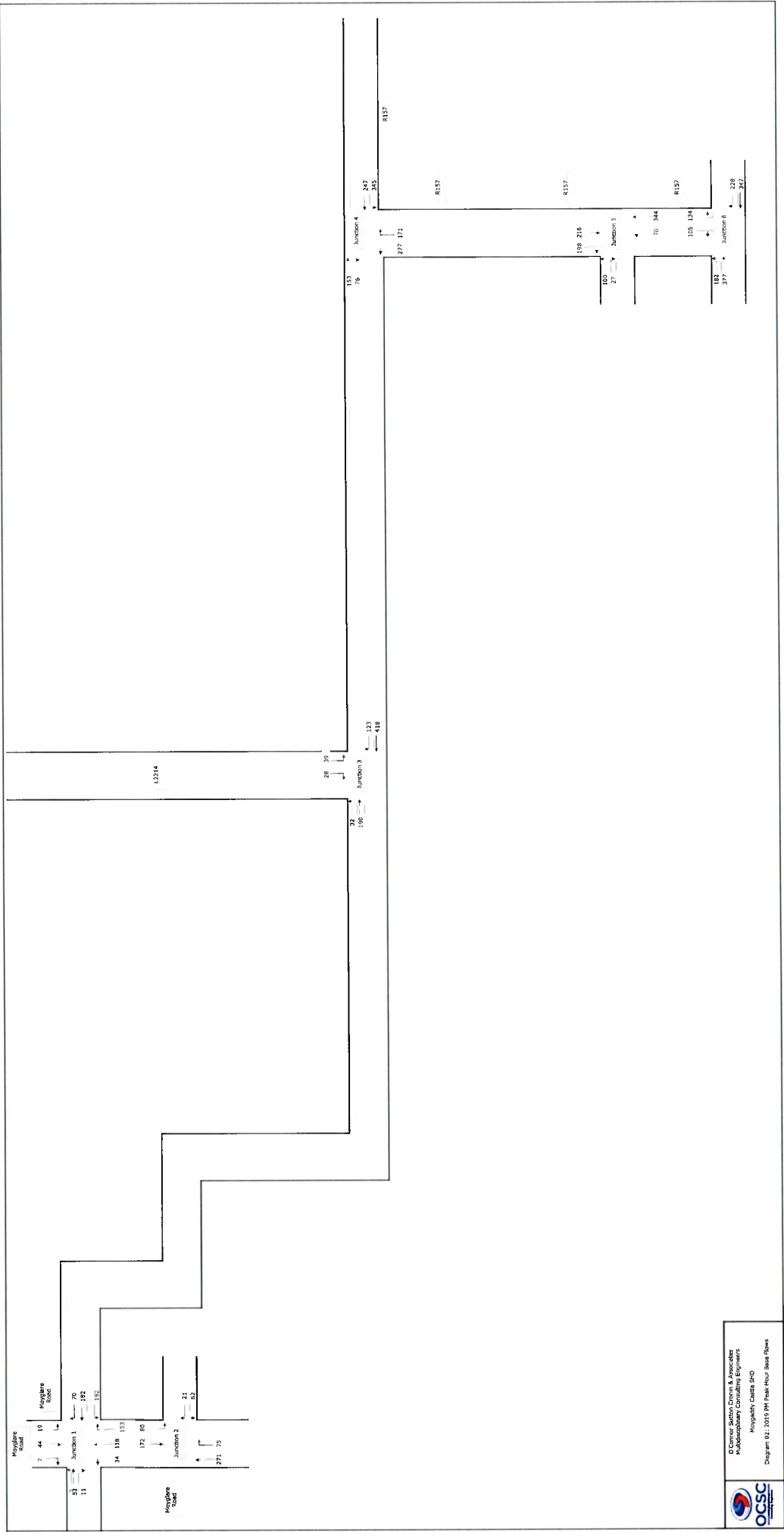
10084 / Moygaddy
May 2019
Junction Turning Count

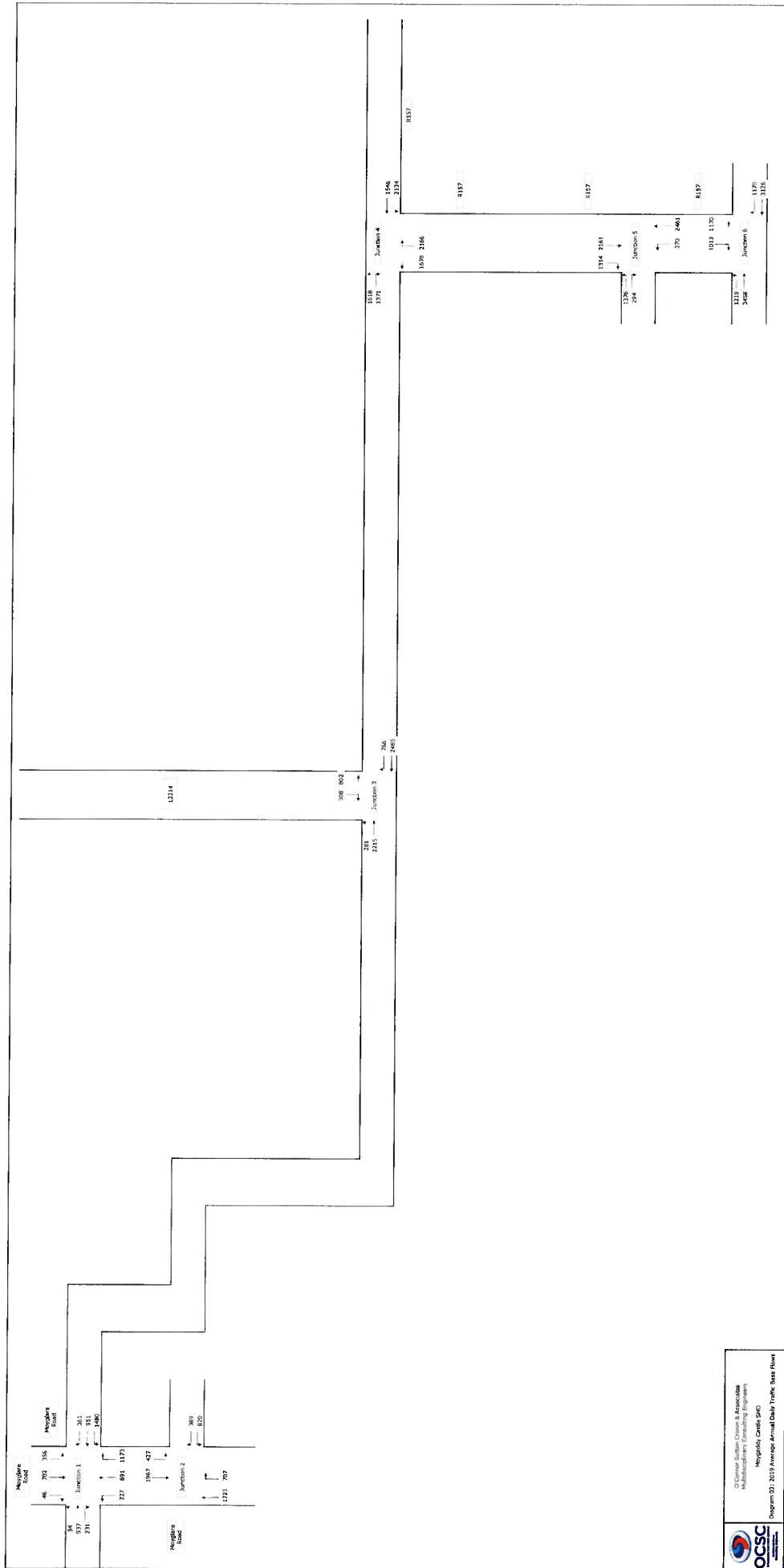
Site No. 6
Location R157 / R148(W) / R148(E)
Date Tuesday 28 May 2019

Time	To Arm C - R148(E)				From Arm C - R148(E)				Veh. Total	P/C	M/C	P/C	M/C	P/C	M/C	Veh. Total
	CAR	Totl	GV	HGV	PSV	CAR	Totl	GV	HGV	PSV						
7:00	133	0	13	4.6	10	0.8	0.2	161.6	37	0	6	9.2	2	0	0	54.2
7:15	127	3	8	4.6	8	0	0.6	151.2	35	1	7	4.6	2	0.4	0	50
7:30	128	1	13	2.3	10	0	0	154.3	43	0	3	2.3	4	0	0	52.3
7:45	130	2	4	4.6	4	0	0.8	145.4	64	0	11	9.2	0	0	0.2	84.4
8:00	99	0	7	4.6	6	0	0.4	117.2	40	0	6	20.7	2	0	0	68.7
8:15	106	0	4	6.9	4	0	0.4	121.3	79	0	6	9.2	2	0	0	94.2
8:30	118	2	13	9.2	2	0	0.2	144.4	81	2	3	11.5	6	0	0.2	103.7
8:45	85	0	4	6.9	2	0.4	0	98.3	104	2	8	13.8	2	0	0	129.8
9:00	86	2	9	2.3	2	0	0	101.3	66	1	4	11.5	0	0	0	92.5
9:15	56	0	6	2.3	2	0.4	0	66.7	62	3	7	6.9	0	0	0.2	79.1
9:30	87	2	9	16.1	4	0.4	0	118.5	69	1	7	2.3	6	0	0.2	85.5
9:45	68	1	7	6.9	16	0	0	98.9	65	1	7	9.2	2	0	0.2	84.4
10:00	51	0	4	4.6	10	0.4	0	70	57	0	4	6.9	2	0	0	89.9
10:15	63	0	10	11.5	0	0	0	84.5	61	0	8	6.9	0	0	0.2	76.1
10:30	60	1	3	4.6	4	0	0	72.6	50	0	8	6.9	4	0	1.2	70.1
10:45	88	2	2	4.6	0	0	0.4	97	58	0	6	4.6	0	0	0	68.6
11:00	63	1	9	6.9	6	0.4	0	84.3	50	0	3	4.6	2	0.4	0	60
11:15	78	1	8	9.2	0	0	0	94.2	70	0	5	4.6	2	0.4	0	82
11:30	68	1	10	4.6	4	0	0	87.6	67	5	4	9.2	4	0	0	89.2
11:45	62	2	5	9.2	2	0	0.2	80.4	76	2	10	9.2	0	0	0	97.2
12:00	72	1	5	6.9	6	0.4	0	91.3	67	0	9	9.2	2	0	0	87.2
12:15	66	1	7	9.2	0	0	0.2	83.4	66	0	5	13.8	2	0.4	0	87.2
12:30	74	2	12	11.5	4	0	0	103.5	92	1	10	11.5	4	0	0.2	118.7
12:45	69	0	12	6.9	0	0	0	87.9	65	0	4	9.2	2	2.8	0.2	83.2
13:00	93	0	8	2.3	12	0	0	115.3	82	0	6	11.5	2	0	0	101.5
13:15	75	1	7	6.9	0	0	0	89.9	89	2	5	6.9	0	0	0	102.9
13:30	75	2	5	11.5	0	0	0.4	93.9	73	3	5	18.4	8	0	0	107.4
13:45	97	0	2	6.9	6	0.4	0	112.3	60	0	5	4.6	2	0	0.2	71.8
14:00	85	0	12	16.1	6	2.8	0.2	122.1	71	0	9	9.2	0	0.4	0	89.6
14:15	81	0	9	13.8	0	0	0.2	104	94	0	5	2.3	2	0	0.2	103.5
14:30	79	0	9	9.2	2	0	0	99.2	60	2	9	2.3	6	0	0	79.3
14:45	96	2	5	4.6	0	0.4	0	108	86	3	8	16.1	0	0	0	113.1
15:00	85	1	7	11.5	6	0	0	110.5	85	2	4	6.9	2	0	0	99.9
15:15	89	5	7	6.9	0	0.4	0.2	106.5	88	0	7	6.9	4	0	0.2	106.1
15:30	69	1	3	11.5	2	0	0	86.5	79	1	4	4.6	4	0	0	92.6
15:45	87	0	9	2.3	6	0	0	104.3	93	1	8	0	2	0	0.2	104.2
16:00	80	1	7	6.9	0	0	0.2	95.1	99	1	13	4.6	2	0.8	0	120.4
16:15	76	0	11	2.3	0	0.4	0.2	89.9	105	0	15	2.3	2	0.4	0.2	124.9
16:30	86	1	9	0	4	0.4	0	100.4	118	1	11	2.3	4	0	0.2	136.5
16:45	94	5	7	2.3	0	0	0.2	108.5	140	0	7	0	2	0	0.4	149.4
17:00	121	0	15	4.6	4	1.2	0.2	146	137	0	13	6.9	0	0	0.2	157.1
17:15	122	0	10	0	0	0	0	132	124	2	8	11.5	4	0	0	149.5
17:30	116	1	5	2.3	0	0.4	0.4	125.1	144	2	10	4.6	2	0	0.2	162.8
17:45	113	1	4	0	6	0	0	124	116	0	9	0	8	0	0.6	133.6
18:00	93	0	8	0	4	0.8	0	105.6	125	0	17	4.6	0	0.4	0.4	147.4
18:15	91	5	3	2.3	0	0	0	101.3	105	0	5	0	2	0.4	0.4	112.8
18:30	92	1	5	2.3	2	0	0.2	102.5	114	0	9	2.3	4	0	0.2	131.5
18:45	82	2	9	0	0	0	0.4	93.4	96	0	7	2.3	2	1.2	1.2	109.7
25:75	4214	54	360	287.5	166	10.4	6.4	3096.3	3907	39	350	336.1	118	8	7.6	4767.7

Appendix B **TRAFFIC FLOW DIAGRAMS**







Appendix **CTRICS OUTPUT FILES**

Calculation Reference: AUDIT-322901-211014-1033

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : C - FLATS PRIVATELY OWNED

TOTAL VEHICLESSelected regions and areas:

01 GREATER LONDON	
EN ENFIELD	1 days
02 SOUTH EAST	
HF HERTFORDSHIRE	2 days
03 SOUTH WEST	
DC DORSET	1 days
05 EAST MIDLANDS	
LE LEICESTERSHIRE	1 days
11 SCOTLAND	
EB CITY OF EDINBURGH	1 days
13 MUNSTER	
WA WATERFORD	1 days
15 GREATER DUBLIN	
DL DUBLIN	3 days
17 ULSTER (NORTHERN IRELAND)	
AN ANTRIM	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
 Actual Range: 14 to 84 (units:)
 Range Selected by User: 6 to 493 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 10/06/21

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	2 days
Tuesday	4 days
Wednesday	1 days
Thursday	1 days
Friday	3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	11 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	6
Edge of Town	2
Neighbourhood Centre (PPS6 Local Centre)	3

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3 11 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

5,001 to 10,000	1 days
10,001 to 15,000	1 days
20,001 to 25,000	4 days
25,001 to 50,000	5 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

50,001 to 75,000	2 days
125,001 to 250,000	3 days
250,001 to 500,000	3 days
500,001 or More	3 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	2 days
0.6 to 1.0	5 days
1.1 to 1.5	4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	2 days
No	9 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	10 days
2 Poor	1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	AN-03-C-02	BLOCK OF FLATS	ANTRIM
	SUMMERHILL AVENUE		
	BELFAST		
	KNOCK		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	22	
	Survey date: FRIDAY	28/11/14	Survey Type: MANUAL
2	DC-03-C-02	FLATS IN BLOCKS	DORSET
	PALM COURT		
	WEYMOUTH		
	SPA ROAD		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	14	
	Survey date: FRIDAY	28/03/14	Survey Type: MANUAL
3	DL-03-C-13	BLOCK OF FLATS	DUBLIN
	SANDYFORD ROAD		
	DUBLIN		
	Neighbourhood Centre (PPS6 Local Centre)		
	Built-Up Zone		
	Total No of Dwellings:	52	
	Survey date: TUESDAY	10/09/13	Survey Type: MANUAL
4	DL-03-C-15	BLOCKS OF FLATS	DUBLIN
	MONKSTOWN ROAD		
	DUBLIN		
	MONKSTOWN		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	20	
	Survey date: WEDNESDAY	01/10/14	Survey Type: MANUAL
5	DL-03-C-16	BLOCKS OF FLATS	DUBLIN
	BOTANIC AVENUE		
	DUBLIN		
	DRUMCONDRA		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	31	
	Survey date: TUESDAY	22/11/16	Survey Type: MANUAL
6	EB-03-C-01	BLOCKS OF FLATS	CITY OF EDINBURGH
	MYRESIDE ROAD		
	EDINBURGH		
	CRAIGLOCKHART		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	32	
	Survey date: TUESDAY	26/05/15	Survey Type: MANUAL
7	EN-03-C-01	BLOCK OF FLATS	ENFIELD
	SOUTH STREET		
	ENFIELD		
	Suburban Area (PPS6 Out of Centre)		
	Built-Up Zone		
	Total No of Dwellings:	16	
	Survey date: MONDAY	16/11/15	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8	HF-03-C-04	BLOCKS OF FLATS	HERTFORDSHIRE
	OXHEY DRIVE		
	WATFORD		
	SOUTH OXHEY		
	Neighbourhood Centre (PPS6 Local Centre)		
	Residential Zone		
	Total No of Dwellings:	84	
	Survey date: THURSDAY	10/06/21	Survey Type: MANUAL
9	HF-03-C-05	BLOCKS OF FLATS	HERTFORDSHIRE
	FERNDOWN ROAD		
	WATFORD		
	SOUTH OXHEY		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	26	
	Survey date: MONDAY	07/06/21	Survey Type: MANUAL
10	LE-03-C-01	BLOCK OF FLATS	LEICESTERSHIRE
	NEW STREET		
	LEICESTER		
	OADBY		
	Neighbourhood Centre (PPS6 Local Centre)		
	Residential Zone		
	Total No of Dwellings:	19	
	Survey date: FRIDAY	16/10/20	Survey Type: MANUAL
11	WA-03-C-01	BLOCKS OF FLATS	WATERFORD
	UPPER YELLOW ROAD		
	WATERFORD		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	51	
	Survey date: TUESDAY	12/05/15	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
CA-03-G 03	PT
CB-03-C-02	PT
CB-03-C-03	PT
DL-03-C-12	PT
DL-03-C-14	PT
DL-03-C-1 7	PT
DS-03-C-03	PT
EN-03-C-03	PT
ES-03-C-01	PT
GA-03-C-01	PT
HF-03 -G 01	PT
HG-03-C-02	PT
HK-03-C -03	PT
HO-03-C-04	PT
HO-03-C-05	PT
HV-03-G01	PT
NF 03C-02	PT
NH-03-C-01	PT
NT-03-C-01	PT
NF 03-C-02	PT
RD-03-C-03	PT
RD-03-C-04	PT
RI-03-C-01	PT
SF-03-C-03	PT
SR-03-C-03	PT
WA-03-C-01	PT
WA-03-C-01	PT

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

TOTAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	11	33	0.079	11	33	0.272	11	33	0.351
08:00 - 09:00	11	33	0.093	11	33	0.196	11	33	0.289
09:00 - 10:00	11	33	0.095	11	33	0.098	11	33	0.193
10:00 - 11:00	11	33	0.074	11	33	0.084	11	33	0.158
11:00 - 12:00	11	33	0.063	11	33	0.060	11	33	0.123
12:00 - 13:00	11	33	0.087	11	33	0.093	11	33	0.180
13:00 - 14:00	11	33	0.090	11	33	0.079	11	33	0.169
14:00 - 15:00	11	33	0.079	11	33	0.076	11	33	0.155
15:00 - 16:00	11	33	0.095	11	33	0.079	11	33	0.174
16:00 - 17:00	11	33	0.117	11	33	0.095	11	33	0.212
17:00 - 18:00	11	33	0.196	11	33	0.060	11	33	0.256
18:00 - 19:00	11	33	0.125	11	33	0.095	11	33	0.220
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.193			1.287			2.480

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected: 14 - 84 (units:)
 Survey date range: 01/01/13 - 10/06/21
 Number of weekdays (Monday-Friday): 11
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 0
 Surveys manually removed from selection: 27

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-322901-211014-1002

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED

TOTAL VEHICLES

Selected regions and areas:

02 SOUTH EAST	
EX ESSEX	1 days
WS WEST SUSSEX	1 days
03 SOUTH WEST	
DV DEVON	1 days
07 YORKSHIRE & NORTH LINCOLNSHIRE	
NY NORTH YORKSHIRE	1 days
SY SOUTH YORKSHIRE	1 days
WY WEST YORKSHIRE	1 days
09 NORTH	
DH DURHAM	2 days
11 SCOTLAND	
FA FALKIRK	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
 Actual Range: 21 to 197 (units:)
 Range Selected by User: 4 to 4334 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 16/06/21

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	4 days
Tuesday	1 days
Wednesday	2 days
Thursday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	9 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	5
Edge of Town	2
Neighbourhood Centre (PPS6 Local Centre)	2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3 9 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	2 days
10,001 to 15,000	3 days
15,001 to 20,000	1 days
20,001 to 25,000	1 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	2 days
75,001 to 100,000	2 days
125,001 to 250,000	3 days
250,001 to 500,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	5 days
1.1 to 1.5	4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	8 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	8 days
2 Poor	1 days

This data displays the number of selected surveys with PTAL Ratings.

Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8	WS-03-A-09	MIXED HOUSES & FLATS	WEST SUSSEX
	LITTLEHAMPTON ROAD		
	WORTHING		
	WEST DURREINGTON		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	197	
	Survey date: THURSDAY	05/07/18	Survey Type: MANUAL
9	WY-03-A-01	MIXED HOUSING	WEST YORKSHIRE
	SPRING VALLEY CRESCENT		
	LEEDS		
	BRAMLEY		
	Neighbourhood Centre (PPS6 Local Centre)		
	Residential Zone		
	Total No of Dwellings:	46	
	Survey date: WEDNESDAY	21/09/16	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
BN-03-A-03	PT
CH-03-A-09	PT
CH-03-A-10	PT
CH-03-A-11	PT
DH-03-A-01	PT
ES-03-A-04	PT
FA-03-A-02	PT
GM-03-A-11	PT
HF-03-A-04	PT
KC-03-A-04	PT
NE-03-A-02	PT
NF-03-A-14	PT
NF-03-A-18	PT
NF-03-A-19	PT
NF-03-A-20	PT
NF-03-A-21	PT
NR-03-A-03	PT
NY-03-A-10	PT
NY-03-A-13	PT
SF-03-A-06	PT
SH-03-A-05	PT
SH-03-A-06	PT
SY-03-A-03	PT
WM-03-A-04	PT
WO-03-A-07	PT
WS-03-A-07	PT
WS-03-A-12	PT
WX-03-A-01	PT
WY-03-A-01	PT
WY-03-A-01	PT
WY-03-A-01	PT
WY-03-A-01	PT

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

TOTAL VEHICLES**Calculation factor: 1 DWELLS****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No Days	Ave DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00- 01:00									
01:00 - 02:00									
02:00- 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00- 06:00									
06:00 - 07:00									
07:00- 08:00	9	77	0.037	9	77	0.189	9	77	0.226
08:00 - 09:00	9	77	0.089	9	77	0.275	9	77	0.364
09:00 - 10:00	9	77	0.145	9	77	0.148	9	77	0.293
10:00- 11:00	9	77	0.090	9	77	0.123	9	77	0.213
11:00- 12:00	9	77	0.106	9	77	0.100	9	77	0.206
12:00- 13:00	9	77	0.122	9	77	0.079	9	77	0.201
13:00 - 14:00	9	77	0.113	9	77	0.109	9	77	0.222
14:00 - 15:00	9	77	0.089	9	77	0.162	9	77	0.251
15:00- 16:00	9	77	0.189	9	77	0.102	9	77	0.291
16:00- 17:00	9	77	0.172	9	77	0.102	9	77	0.274
17:00- 18:00	9	77	0.211	9	77	0.070	9	77	0.281
18:00 - 19:00	9	77	0.172	9	77	0.119	9	77	0.291
19:00 - 20:00	1	97	0.062	1	97	0.052	1	97	0.114
20:00- 21:00	1	97	0.031	1	97	0.021	1	97	0.052
21:00 - 22:00									
22:00- 23:00									
23:00 - 24:00									
Total Rates			1.628			1.651			3.279

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected: 21 - 197 (units:)
 Survey date range: 01/01/13 - 16/06/21
 Number of weekdays (Monday-Friday): 9
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 0
 Surveys manually removed from selection: 32

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-322901-210928-0915

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 05 - HEALTH
 Category : F - CARE HOME (ELDERLY RESIDENTIAL)

TOTAL VEHICLESSelected regions and areas:

02 SOUTH EAST	
HC HAMPSHIRE	1 days
07 YORKSHIRE & NORTH LINCOLNSHIRE	
NY NORTH YORKSHIRE	1 days
11 SCOTLAND	
SR STIRLING	1 days
12 CONNAUGHT	
CS SLIGO	1 days
15 GREATER DUBLIN	
DL DUBLIN	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of residents
 Actual Range: 16 to 99 (units:)
 Range Selected by User: 16 to 180 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 02/05/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	2 days
Tuesday	2 days
Wednesday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	2
Edge of Town	3

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	4
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:Use Class:

C2 5 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

5,001 to 10,000 4 days

10,001 to 15,000 1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000 1 days

25,001 to 50,000 3 days

250,001 to 500,000 1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

1.1 to 1.5 5 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes 1 days

No 4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present 5 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	CS-05-F-01	NURSING HOME	SLIGO
	CHURCH HILL		
	SLIGO		
	Edge of Town		
	Residential Zone		
	Total Number of residents:	99	
	Survey date: MONDAY	27/04/15	Survey Type: MANUAL
2	DL-05-F-01	NURSING HOME	DUBLIN
	MOUNT ANVILLE PARK		
	DUBLIN		
	GOATSTOWN		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of residents:	16	
	Survey date: TUESDAY	05/09/17	Survey Type: MANUAL
3	HC-05-F-01	CARE HOME	HAMPSHIRE
	BOTLEY ROAD		
	SOUTHAMPTON		
	Edge of Town		
	No Sub Category		
	Total Number of residents:	42	
	Survey date: TUESDAY	24/11/15	Survey Type: MANUAL
4	NY-05-F-05	NURSING HOME	NORTH YORKSHIRE
	SEAGRIM CRESCENT		
	RICHMOND		
	Edge of Town		
	Residential Zone		
	Total Number of residents:	37	
	Survey date: MONDAY	04/03/19	Survey Type: MANUAL
5	SR-05-F-01	NURSING HOME	STIRLING
	PERTH ROAD		
	DUNBLANE		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of residents:	60	
	Survey date: WEDNESDAY	18/06/14	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
DS-05-F-01	public transport
ES-05-F-02	public transport
EX-05-F-01	public transport
GM-05-F-03	public transport
HF-05-F-02	public transport
LC-05-F-02	public transport
NT-05-F-02	public transport
SF-05-F-01	public transport
SW-05-F-01	public transport
TW-05-F-03	public transport

TRIP RATE for Land Use 05 - HEALTH/F - CARE HOME (ELDERLY RESIDENTIAL)

TOTAL VEHICLES**Calculation factor: 1 RESIDE****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. RESIDE	Trip Rate	No. Days	Ave. RESIDE	Trip Rate	No. Days	Ave. RESIDE	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	51	0.177	5	51	0.039	5	51	0.216
08:00 - 09:00	5	51	0.075	5	51	0.083	5	51	0.158
09:00 - 10:00	5	51	0.169	5	51	0.067	5	51	0.236
10:00 - 11:00	5	51	0.201	5	51	0.094	5	51	0.295
11:00 - 12:00	5	51	0.146	5	51	0.157	5	51	0.303
12:00 - 13:00	5	51	0.110	5	51	0.169	5	51	0.279
13:00 - 14:00	5	51	0.220	5	51	0.189	5	51	0.409
14:00 - 15:00	5	51	0.197	5	51	0.295	5	51	0.492
15:00 - 16:00	5	51	0.193	5	51	0.197	5	51	0.390
16:00 - 17:00	5	51	0.091	5	51	0.205	5	51	0.296
17:00 - 18:00	5	51	0.083	5	51	0.130	5	51	0.213
18:00 - 19:00	5	51	0.071	5	51	0.091	5	51	0.162
19:00 - 20:00	4	39	0.032	4	39	0.058	4	39	0.090
20:00 - 21:00	4	39	0.058	4	39	0.052	4	39	0.110
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.823			1.826			3.649

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected: 16 - 99 (units:)
Survey date range: 01/01/13 - 02/05/19
Number of weekdays (Monday-Friday): 5
Number of Saturdays: 0
Number of Sundays: 0
Surveys automatically removed from selection: 0
Surveys manually removed from selection: 10

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-322901-210928-0901

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 05 - HEALTH
 Category : E - CLINICS

TOTAL VEHICLESSelected regions and areas:

06 WEST MIDLANDS
 WK WARWICKSHIRE 1 days
14 LEINSTER
 KK KILKENNY 1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
 Actual Range: 210 to 1720 (units: sqm)
 Range Selected by User: 17 to 4000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 26/11/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Friday 2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count 2 days
 Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre) 1
 Edge of Town 1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone 2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:Use Class:

E(e) 2 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):Population within 1 mile:

1,001 to 5,000	1 days
10,001 to 15,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,000 or Less	1 days
50,001 to 75,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	2 days
----	--------

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	2 days
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This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

- 1 KK-05-E-01 PHYSICAL THERAPY CLINIC KILKENNY**
 CLONMEL ROAD
 CALLAN
 Suburban Area (PPS6 Out of Centre)
 Residential Zone
 Total Gross floor area: 1720 sqm
 Survey date: FRIDAY 27/10/17
 Survey Type: MANUAL
- 2 WK-05-E-01 CHIROPRACTIC CLINIC WARWICKSHIRE**
 ALCESTER ROAD
 STRATFORD-UPON-AVON
 Edge of Town
 Residential Zone
 Total Gross floor area: 310 sqm
 Survey date: FRIDAY 29/06/18
 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
AD-05-E-01	public transport
MS-05-E-01	public transport
NF-05-E-01	public transport
NF-05-E-02	public transport
WL-05-E-01	public transport

MANUALLY DESELECTED SURVEYS

Site Ref	Survey Date	Reason for Deselection
LN-05-E-02	10/06/13	Public transport

TRIP RATE for Land Use 05 - HEALTH/E - CLINICS

TOTAL VEHICLES**Calculation factor: 100 sqm****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00- 01:00									
01:00 - 02:00									
02:00- 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00- 06:00									
06:00- 07:00									
07:00 - 08:00	1	1720	0.058	1	1720	0.116	1	1720	0.174
08:00- 09:00	2	1015	0.246	2	1015	0.000	2	1015	0.246
09:00- 10:00	2	1015	0.493	2	1015	0.246	2	1015	0.739
10:00- 11:00	2	1015	0.246	2	1015	0.443	2	1015	0.689
11:00 - 12:00	2	1015	0.246	2	1015	0.443	2	1015	0.689
12:00 - 13:00	2	1015	0.345	2	1015	0.099	2	1015	0.444
13:00- 14:00	2	1015	0.246	2	1015	0.296	2	1015	0.542
14:00 - 15:00	2	1015	0.493	2	1015	0.542	2	1015	1.035
15:00- 16:00	2	1015	0.345	2	1015	0.296	2	1015	0.641
16:00 - 17:00	2	1015	0.049	2	1015	0.197	2	1015	0.246
17:00 - 18:00	2	1015	0.296	2	1015	0.197	2	1015	0.493
18:00- 19:00	2	1015	0.197	2	1015	0.296	2	1015	0.493
19:00- 20:00	2	1015	0.049	2	1015	0.099	2	1015	0.148
20:00- 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00- 24:00									
Total Rates			3.309			3.270			6.579

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected: 210 - 1720 (units: sqm)
 Survey date range: 01/01/13 - 26/11/19
 Number of weekdays (Monday-Friday): 3
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 1
 Surveys manually removed from selection: 5

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-322901-210928-0944

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
 Category : B - BUSINESS PARK

TOTAL VEHICLESSelected regions and areas:

06 WEST MIDLANDS	
WO WORCESTERSHIRE	1 days
08 NORTH WEST	
GM GREATER MANCHESTER	1 days
14 LEINSTER	
LU LOUTH	1 days
15 GREATER DUBLIN	
DL DUBLIN	1 days
16 ULSTER (REPUBLIC OF IRELAND)	
DN DONEGAL	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Parking spaces
 Actual Range: 60 to 750 (units:)
 Range Selected by User: 7 to 4167 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 21/11/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	1 days
Wednesday	1 days
Thursday	1 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	3
Neighbourhood Centre (PPS6 Local Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	1
Commercial Zone	2
Village	1
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:Use Class:

Not Known

5 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:

All Surveys Included

Population within 500m Range:

All Surveys Included

Population within 1 mile:

5,001 to 10,000	1 days
10,001 to 15,000	2 days
20,001 to 25,000	1 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
50,001 to 75,000	1 days
250,001 to 500,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	3 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	5 days
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This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	DL-02-B-07	BUSINESS PARK	DUBLIN
	BURTON HALL AVENUE		
	DUBLIN		
	LEOPARDSTOWN		
	Edge of Town		
	Commercial Zone		
	Total Parking spaces:	174	
	Survey date: WEDNESDAY	01/10/14	Survey Type: MANUAL
2	DN-02-B-02	BUSINESS PARK	DONEGAL
	N56		
	LETTERKENNY		
	KNOCKNAMONA		
	Edge of Town		
	No Sub Category		
	Total Parking spaces:	750	
	Survey date: MONDAY	29/09/14	Survey Type: MANUAL
3	GM-02-B-04	BUSINESS PARK	GREATER MANCHESTER
	SALMON FIELDS		
	OLDHAM		
	Suburban Area (PPS6 Out of Centre)		
	Industrial Zone		
	Total Parking spaces:	92	
	Survey date: THURSDAY	22/10/15	Survey Type: MANUAL
4	LU-02-B-01	BUSINESS PARK	LOUTH
	N52		
	DUNDALK		
	Edge of Town		
	Commercial Zone		
	Total Parking spaces:	193	
	Survey date: FRIDAY	13/09/13	Survey Type: MANUAL
5	WO-02-B-02	BUSINESS PARK	WORCESTERSHIRE
	BIRMINGHAM ROAD		
	NEAR BROMSGROVE		
	LICKEY END		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total Parking spaces:	233	
	Survey date: TUESDAY	26/06/18	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
AD-02-B-02	public transport
AN-02-B-02	public transport
AN-02-B-03	public transport
AN-02-B-04	public transport
CA-02-B-02	public transport
CF-02-B-04	public transport
CF-02-B-05	public transport
CF-02-B-06	public transport
CH-02-B-01	public transport
CR-02-B-01	public transport
DL-02-B-06	public transport
DL-02-B-08	public transport
DV-02-B-01	public transport
EX-02-B-01	public transport
EX-02-B-02	public transport
FA-02-B-02	public transport
FI-02-B-01	public transport
HC-02-B-02	public transport
LN-02-B-02	public transport
ST-02-B-04	public transport
TW-02-B-05	public transport
TW-02-B-06	public transport
WG-02-B-02	public transport

MANUALLY DESELECTED SITES (Cont.)

Site Ref	Reason for Deselection
WK-02-B-01	public transport
WM-02-B-02	public transport
WM-02-B-03	public transport
WY-02-B-01	public transport
WY-02-B-02	public transport
WY-02-B-03	public transport

MANUALLY DESELECTED SURVEYS

Site Ref	Survey Date	Reason for Deselection
AN-02-B-01	27/11/14	Public Transport
CF-02-B-07	13/03/18	Public Transport
CF-02-B-08	14/10/19	Public Transport
WY-02-B-03	15/09/16	Public Transport

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK

TOTAL VEHICLES**Calculation factor: 1 PARKING SPACES****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PARKING	Trip Rate	No. Days	Ave. PARKING	Trip Rate	No. Days	Ave. PARKING	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	288	0.064	5	288	0.008	5	288	0.072
07:30 - 08:00	5	288	0.128	5	288	0.014	5	288	0.142
08:00 - 08:30	5	288	0.181	5	288	0.019	5	288	0.200
08:30 - 09:00	5	288	0.186	5	288	0.023	5	288	0.209
09:00 - 09:30	5	288	0.097	5	288	0.022	5	288	0.119
09:30 - 10:00	5	288	0.054	5	288	0.021	5	288	0.075
10:00 - 10:30	5	288	0.031	5	288	0.019	5	288	0.005
10:30 - 11:00	5	288	0.024	5	288	0.002	5	288	0.044
11:00 - 11:30	5	288	0.024	5	288	0.022	5	288	0.046
11:30 - 12:00	5	288	0.024	5	288	0.028	5	288	0.052
12:00 - 12:30	5	288	0.029	5	288	0.047	5	288	0.076
12:30 - 13:00	5	288	0.038	5	288	0.047	5	288	0.085
13:00 - 13:30	5	288	0.042	5	288	0.044	5	288	0.086
13:30 - 14:00	5	288	0.041	5	288	0.029	5	288	0.070
14:00 - 14:30	5	288	0.032	5	288	0.030	5	288	0.062
14:30 - 15:00	5	288	0.021	5	288	0.033	5	288	0.054
15:00 - 15:30	5	288	0.018	5	288	0.005	5	288	0.068
15:30 - 16:00	5	288	0.019	5	288	0.057	5	288	0.076
16:00 - 16:30	5	288	0.017	5	288	0.008	5	288	0.097
16:30 - 17:00	5	288	0.017	5	288	0.100	5	288	0.117
17:00 - 17:30	5	288	0.014	5	288	0.147	5	288	0.161
17:30 - 18:00	5	288	0.011	5	288	0.129	5	288	0.140
18:00 - 18:30	5	288	0.008	5	288	0.088	5	288	0.096
18:30 - 19:00	5	288	0.006	5	288	0.054	5	288	0.060
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			1.126				1.131	2.257	

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	60 - 750 (units:)
Survey date date range:	01/01/13 - 21/11/19
Number of weekdays (Monday-Friday):	9
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	4
Surveys manually removed from selection:	29

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-322901-210705-0718

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
 Category : W - THEATRE

TOTAL VEHICLESSelected regions and areas:**02 SOUTH EAST**

WS WEST SUSSEX 1 days

12 CONNAUGHT

CS SLIGO 1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of seats
 Actual Range: 100 to 815 (units:)
 Range Selected by User: 100 to 1915 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/93 to 25/10/13

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Wednesday 1 days
 Friday 1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count 2 days
 Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Town Centre 1
 Edge of Town Centre 1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Built-Up Zone 2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:Use Class:

Sui Generis 2 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):Population within 1 mile:

Not Known	1 days
10,001 to 15,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

Not Known	1 days
5,001 to 25,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

1.1 to 1.5	2 days
------------	--------

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Not Known	1 days
No	1 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	2 days
-----------------	--------

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

- 1 CS-07-W-01 THEATRE SLIGO**
 LOWER QUAY STREET
 SLIGO
 Town Centre
 Built-Up Zone
 Total Number of seats: 100
Survey date: FRIDAY 25/10/13 *Survey Type: MANUAL*
- 2 WS-07-W-01 THEATRE WEST SUSSEX**
 HAWTH AVENUE
 CRAWLEY
 Edge of Town Centre
 Built-Up Zone
 Total Number of seats: 815
Survey date: WEDNESDAY 28/04/93 *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
AG-07-W-01	public transport
DE-07-W-01	public transport
NF-07-W-01	public transport
NY-07-W-01	public transport
SY-07-W-01	public transport
WK-07-W-01	public transport
WK-07-W-02	public transport

TRIP RATE for Land Use 07 - LEISURE/W - THEATRE

TOTAL VEHICLES**Calculation factor: 1 SEATS****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate
00:00- 01:00									
01:00- 02:00									
02:00- 03:00									
03:00 - 04:00									
04:00- 05:00									
05:00- 06:00									
06:00 - 07:00									
07:00 - 08:00									
08:00- 09:00	1	100	0.030	1	100	0.010	1	100	0.040
09:00 - 10:00	1	100	0.000	1	100	0.020	1	100	0.020
10:00 - 11:00	1	100	0.000	1	100	0.000	1	100	0.000
11:00 - 12:00	1	100	0.000	1	100	0.000	1	100	0.000
12:00 - 13:00	1	100	0.000	1	100	0.000	1	100	0.000
13:00 - 14:00	1	100	0.000	1	100	0.000	1	100	0.000
14:00 - 15:00	1	100	0.060	1	100	0.030	1	100	0.090
15:00 - 16:00	1	100	0.020	1	100	0.010	1	100	0.030
16:00- 17:00	1	100	0.090	1	100	0.080	1	100	0.170
17:00- 18:00	1	100	0.000	1	100	0.010	1	100	0.010
18:00 - 19:00	2	458	0.133	2	458	0.027	2	458	0.160
19:00 - 20:00	2	458	0.328	2	458	0.045	2	458	0.373
20:00- 21:00	2	458	0.019	2	458	0.012	2	458	0.031
21:00 - 22:00	1	100	0.000	1	100	0.150	1	100	0.150
22:00 - 23:00	1	100	0.000	1	100	0.020	1	100	0.020
23:00- 24:00									
Total Rates:			0.680			0.414			1.094

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	100 - 815 (units:)
Survey date range:	01/01/93 - 25/10/13
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	7

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-322901-210705-0731

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE

Category : I - ART GALLERIES/MUSEUMS/EXHIBITIONS

TOTAL VEHICLESSelected regions and areas:**13 MUNSTER**

CR CORK

1 days

16 ULSTER (REPUBLIC OF IRELAND)

DN DONEGAL

1 days

*This section displays the number of survey days per TRICS® sub-region in the selected set***Primary Filtering selection:***This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.*

Parameter: Gross floor area
 Actual Range: 200 to 10880 (units: sqm)
 Range Selected by User: 200 to 22662 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/00 to 23/11/19

*This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.*Selected survey days:

Wednesday 1 days
 Thursday 1 days

*This data displays the number of selected surveys by day of the week.*Selected survey types:

Manual count 2 days
 Directional ATC Count 0 days

*This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.*Selected Locations:

Town Centre 1
 Edge of Town Centre 1

*This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.*Selected Location Sub Categories:

Built-Up Zone 1
 High Street 1

*This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.***Secondary Filtering selection:**Use Class:

F1(c) 2 days

*This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.*Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):Population within 1 mile:

1,001 to 5,000	1 days
15,001 to 20,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	1 days
75,001 to 100,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	2 days
----	--------

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	2 days
-----------------	--------

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

- 1 **CR-07-I-01 CORK BUTTER MUSEUM CORK**
 JOHN REDMOND STREET
 CORK
 SHANDON
 Town Centre
 Built-Up Zone
 Total Gross floor area: 200 sqm
 Survey date: THURSDAY 25/06/09 Survey Type: MANUAL
- 2 **DN-07-I-02 COUNTY MUSEUM DONEGAL**
 HIGH ROAD
 LETTERKENNY
 BALLYBOE GLENCAR
 Edge of Town Centre
 High Street
 Total Gross floor area: 750 sqm
 Survey date: WEDNESDAY 10/10/18 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
AD-07-I-01	public transport
AD-07-I-02	public transport
AD-07-I-03	public transport
CF-07-I-01	public transport
DC-07-I-02	public transport
DS-07-I-01	public transport
DU-07-I-01	public transport
DU-07-I-02	public transport
GC-07-I-02	public transport
HI-07-I-01	public transport
HI-07-I-02	public transport
KH-07-I-01	public transport
KH-07-I-02	public transport
MS-07-I-01	public transport
MS-07-I-02	public transport
MS-07-I-03	public transport
NR-07-I-01	public transport
NY-07-I-01	public transport
NY-07-I-02	public transport
OX-07-I-01	public transport
OX-07-I-01	public transport

MANUALLY DESELECTED SURVEYS

Site Ref	Survey Date	Reason for Deselection
OX-07-I-01	11/06/03	Public Transport

TRIP RATE for Land Use 07 - LEISURE/I - ART GALLERIES/MUSEUMS/EXHIBITIONS

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00									
08:00 - 09:00	1	200	0.000	1	200	0.000	1	200	0.000
09:00 - 10:00	2	475	0.211	2	475	0.105	2	475	0.316
10:00 - 11:00	2	475	0.105	2	475	0.105	2	475	0.210
11:00 - 12:00	2	475	0.000	2	475	0.105	2	475	0.105
12:00 - 13:00	2	475	0.211	2	475	0.000	2	475	0.211
13:00 - 14:00	2	475	0.105	2	475	0.211	2	475	0.316
14:00 - 15:00	2	475	0.316	2	475	0.211	2	475	0.527
15:00 - 16:00	2	475	0.421	2	475	0.211	2	475	0.632
16:00 - 17:00	2	475	0.105	2	475	0.526	2	475	0.631
17:00 - 18:00	2	475	0.000	2	475	0.105	2	475	0.105
18:00 - 19:00									
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.474			1.579			3.053

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	200 - 10880 (units: sqm)
Survey date range:	01/01/00 - 23/11/19
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	21

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-322901-210705-0742

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
 Category : A - HOTELS

TOTAL VEHICLESSelected regions and areas:

02	SOUTH EAST	
	HC HAMPSHIRE	2 days
	HF HERTFORDSHIRE	1 days
03	SOUTH WEST	
	WL WILTSHIRE	1 days
09	NORTH	
	DH DURHAM	1 days
11	SCOTLAND	
	AG ANGUS	1 days
	DU DUNDEE CITY	1 days
	HI HIGHLAND	1 days
12	CONNAUGHT	
	CS SLIGO	1 days
14	LEINSTER	
	KK KILKENNY	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of bedrooms
 Actual Range: 4 to 156 (units:)
 Range Selected by User: 4 to 483 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/00 to 26/11/20

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	3 days
Thursday	6 days
Friday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	11 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town Centre	3
Edge of Town	8

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Commercial Zone	1
Development Zone	1
Residential Zone	3
Built-Up Zone	1
No Sub Category	5

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:Use Class:

C1 11 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	4 days
10,001 to 15,000	1 days
15,001 to 20,000	4 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	2 days
25,001 to 50,000	2 days
75,001 to 100,000	3 days
100,001 to 125,000	1 days
125,001 to 250,000	1 days
250,001 to 500,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	3 days
1.1 to 1.5	7 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Not Known	1 days
No	10 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present 11 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	AG-06-A-01	BOUTIQUE B&B		ANGUS
	CLIFFBURN ROAD			
	ARBROATH			
	HAYSHEAD			
	Edge of Town			
	Residential Zone			
	Total Number of bedrooms:	4		
	Survey date: TUESDAY	22/05/12		Survey Type: MANUAL
2	CS-06-A-03	HOTEL		SLIGO
	STRANDHILL ROAD			
	SLIGO			
	Edge of Town Centre			
	Built-Up Zone			
	Total Number of bedrooms:	98		
	Survey date: THURSDAY	31/10/13		Survey Type: MANUAL
3	DH-06-A-01	PREMIER INN		DURHAM
	FREEMANS PLACE			
	DURHAM			
	MILLENNIUM PLACE			
	Edge of Town Centre			
	Development Zone			
	Total Number of bedrooms:	103		
	Survey date: THURSDAY	04/12/08		Survey Type: MANUAL
4	DU-06-A-01	TRAVEL INN		DUNDEE CITY
	RIVERSIDE DRIVE			
	DUNDEE			
	DISCOVERY QUAY			
	Edge of Town Centre			
	No Sub Category			
	Total Number of bedrooms:	40		
	Survey date: TUESDAY	31/05/05		Survey Type: MANUAL
5	HC-06-A-05	TRAVEL INN		HAMPSHIRE
	M27 WESTBOUND			
	SOUTHAMPTON			
	ROWNHAMS			
	Edge of Town			
	No Sub Category			
	Total Number of bedrooms:	39		
	Survey date: THURSDAY	18/07/02		Survey Type: MANUAL
6	HC-06-A-06	HOTEL		HAMPSHIRE
	GRANGE ROAD			
	SOUTHAMPTON			
	HEDGE END			
	Edge of Town			
	No Sub Category			
	Total Number of bedrooms:	56		
	Survey date: THURSDAY	18/07/02		Survey Type: MANUAL
7	HF-06-A-03	NOVOTEL		HERTFORDSHIRE
	A1(M)			
	STEVENAGE			
	KNEBWORTH PARK			
	Edge of Town			
	No Sub Category			
	Total Number of bedrooms:	100		
	Survey date: THURSDAY	08/07/04		Survey Type: MANUAL
8	HI-06-A-03	EXPRESS BY HOL.INN		HIGHLAND
	A96			
	INVERNESS			
	STONEFIELD BUSINESS PK			
	Edge of Town			
	Commercial Zone			
	Total Number of bedrooms:	94		
	Survey date: THURSDAY	25/05/06		Survey Type: MANUAL
9	KK-06-A-01	B&B		KILKENNY
	CIRCULAR ROAD			
	KILKENNY			
	Edge of Town			
	Residential Zone			
	Total Number of bedrooms:	9		
	Survey date: FRIDAY	21/11/08		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

10	KK-06-A-02	HOTEL	KILKENNY
	COLLEGE ROAD		
	KILKENNY		
	Edge of Town		
	Residential Zone		
	Total Number of bedrooms:	138	
	Survey date: FRIDAY	21/11/08	Survey Type: MANUAL
11	WL-06-A-03	TRAVELODGE	WILTSHIRE
	LAWRENCE HILL		
	WINCANTON		
	Edge of Town		
	No Sub Category		
	Total Number of bedrooms:	57	
	Survey date: TUESDAY	18/09/18	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
AN-06-A-02	public transport
BU-06-A-01	public transport
BU-06-A-02	public transport
CA-06-A-01	public transport
CA-06-A-02	public transport
CA-06-A-03	public transport
CF-06-A-02	public transport
CF-06-A-03	public transport
CF-06-A-05	public transport
CR-06-A-01	public transport
DL-06-A-01	public transport
DL-06-A-02	public transport
DL-06-A-03	public transport
DL-06-A-05	public transport
DL-06-A-06	public transport
DL-06-A-07	public transport
DO-06-A-01	public transport
DS-06-A-01	public transport
DV-06-A-02	public transport
DV-06-A-03	public transport
EB-06-A-01	public transport
GC-06-A-02	public transport
GM-06-A-06	public transport
GM-06-A-07	public transport
GS-06-A-01	public transport
GS-06-A-02	public transport
HF-06-A-02	public transport
HI-06-A-05	public transport
LC-06-A-04	public transport
LE-06-A-01	public transport
NF-06-A-04	public transport
NT-06-A-01	public transport
NT-06-A-02	public transport
NY-06-A-01	public transport
SW-06-A-01	public transport
TV-06-A-02	public transport
TW-06-A-01	public transport
TW-06-A-02	public transport
WM-06-A-03	public transport
WM-06-A-04	public transport
WO-06-A-02	public transport
WO-06-A-03	public transport
WS-06-A-02	public transport
WS-06-A-03	public transport
WY-06-A-01	public transport
WY-06-A-02	public transport
WY-06-A-03	public transport

MANUALLY DESELECTED SURVEYS

Site Ref	Survey Date	Reason for Deselection
CF-06-A-01	21/10/02	Public Transport

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/A - HOTELS

TOTAL VEHICLES**Calculation factor: 1 BEDRMS****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	10	70	0.104	10	70	0.144	10	70	0.248
08:00 - 09:00	11	67	0.156	11	67	0.176	11	67	0.332
09:00 - 10:00	11	67	0.179	11	67	0.210	11	67	0.389
10:00 - 11:00	11	67	0.149	11	67	0.222	11	67	0.371
11:00 - 12:00	11	67	0.150	11	67	0.188	11	67	0.338
12:00 - 13:00	11	67	0.198	11	67	0.182	11	67	0.380
13:00 - 14:00	11	67	0.154	11	67	0.173	11	67	0.327
14:00 - 15:00	11	67	0.179	11	67	0.190	11	67	0.369
15:00 - 16:00	11	67	0.168	11	67	0.157	11	67	0.325
16:00 - 17:00	11	67	0.213	11	67	0.186	11	67	0.399
17:00 - 18:00	11	67	0.283	11	67	0.192	11	67	0.475
18:00 - 19:00	11	67	0.183	11	67	0.141	11	67	0.324
19:00 - 20:00	9	71	0.132	9	71	0.128	9	71	0.260
20:00 - 21:00	9	71	0.104	9	71	0.098	9	71	0.202
21:00 - 22:00	7	64	0.107	7	64	0.156	7	64	0.263
22:00 - 23:00	2	72	0.098	2	72	0.133	2	72	0.231
23:00 - 24:00	1	40	0.025	1	40	0.000	1	40	0.025
Total Rates:			2.582			2.676			5.258

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	4 - 156 (units:)
Survey date range:	01/01/00 - 26/11/20
Number of weekdays (Monday-Friday):	12
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	7
Surveys manually removed from selection:	47

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

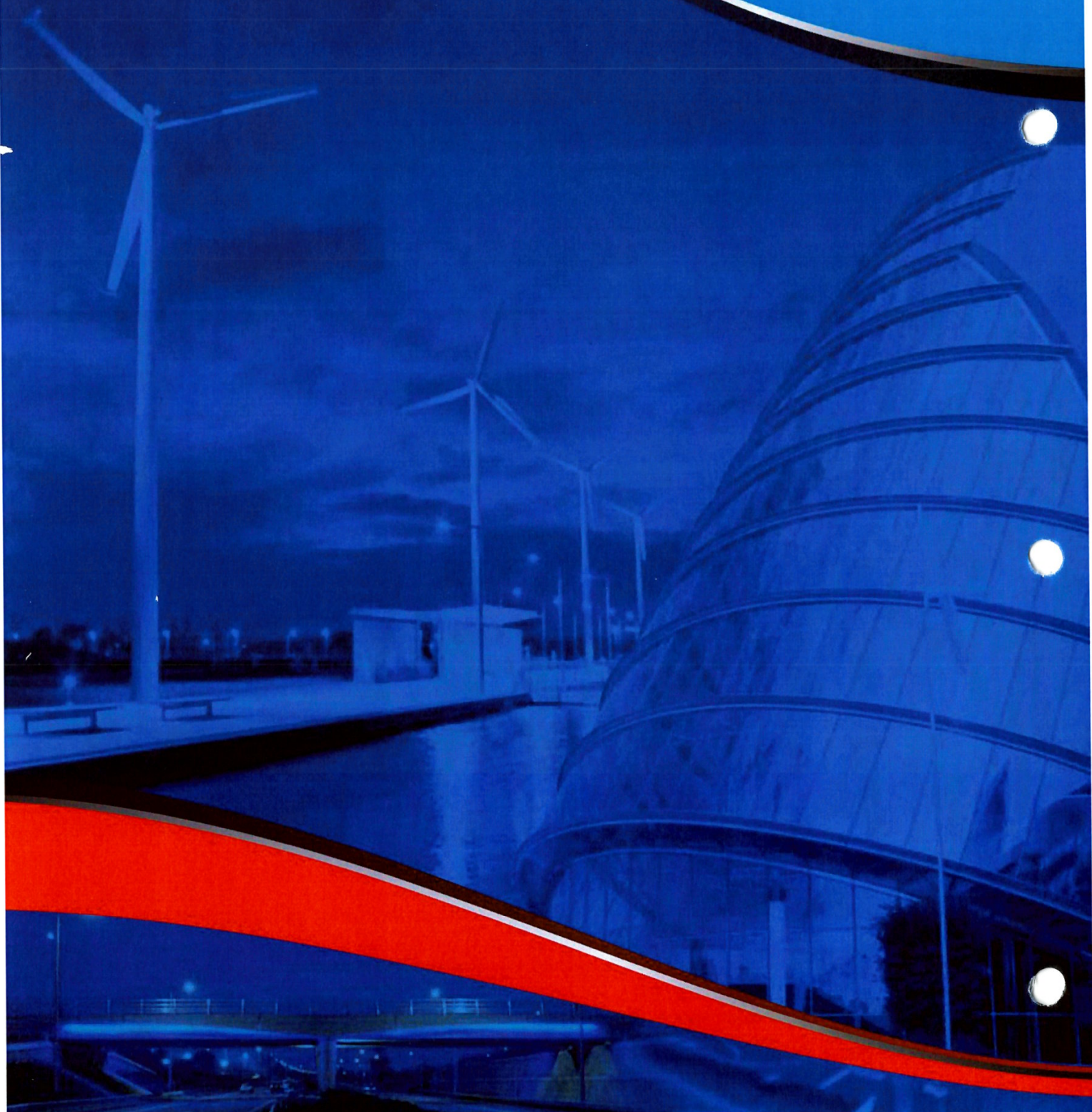
Appendix D **MAYNOOTH TRANSPORT STRATEGY SUBMISSION**

MAYNOOTH TRANSPORT STRATEGY SUBMISSION REPORT

MOYGADDY DEVELOPMENT



Sky Castle Ltd
S665
12 November 2021



MAYNOOTH TRANSPORT STRATEGY SUBMISSION REPORT

MOYGADDY DEVELOPMENT



OCSC

O'CONNOR | SUTTON | CRONIN

Multidisciplinary
Consulting Engineers

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DOCUMENT CONTROL & HISTORY

OCSC Job No: S665	Project Code	Originator	Zone Volume	Level	File Type	Role Type	Number	Status / Suitability Code	Revision
	S665	OCSC	1C	XX	RP	C	0007	S2	P01

Rev.	Status	Authors	Checked	Authorised	Issue Date
P02	S2	W. Marais	S. McGivney	A. Horan	12/11/2021
P01	S2	W. Marais	S. McGivney	A. Horan	12/11/2021

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3	MOYGADDY INFRASTRUCTURAL UPGRADES	4
4	IMPACT ON THE MAYNOOTH TRANSPORT STRATEGY	6
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1 INTRODUCTION

O'Connor Sutton Cronin & Associates (OCSC) have been appointed by Sky Castle Ltd to prepare a submission on the current proposals for the developments at Moygaddy, Co. Meath, which forms part of the Maynooth environs and its potential impact, if any, on the Maynooth Transport Strategy (MTS).

The Maynooth Outer Orbital Route is located within the Sky Castle land holding and therefore the delivery of this strategic road infrastructure is a key consideration in the context of the MTS.

The Moygaddy Masterplan is a non-statutory plan that has been prepared by the developer to assist with the co-ordination and phased delivery of the project. Pre-planning discussions have been undertaken with Meath County Council and lodging of the full planning applications are imminent. The full Moygaddy Development consists of the following parts:

- Pre-planning applications:
 - Medical phase (Primary Care Centre and Nursing Home Unit)
 - Offices phase 1 (three office buildings, approximately 16,700 m²)
 - Residential phase 1A (360 no. residential units, 289m² creche, and public park)
- Future Applications:
 - Offices phase 2 & 3 (six office buildings, approximately 33,400 m²)
 - Future Residential phases
 - Public hospital
 - Hotel & leisure facilities

Included with these developments are a number of road infrastructure upgrades, which are described in full detail in Section 3 of this report.

The location of the Moygaddy Development can be seen in Figure 1 overleaf.



Figure 1: Locality Plan

The purpose of this report is to:

- Summarise the proposed developments within the wider Maynooth Environs;
- List the infrastructural upgrades planned as part of these developments;
- **Assess the impact of these infrastructural upgrades on the Maynooth Transport Strategy.**

2 OVERVIEW OF THE MAYNOOTH TRANSPORT STRATEGY

According to the Maynooth Transport Strategy document prepared on behalf of Kildare County Council (KCC), the MTS can be summarised as below:

- A transport strategy is being developed which will **propose** measures to improve walking, cycling, public transport, roads and parking in Maynooth and its environs
- The strategy will place particular focus on improving conditions for pedestrians, **cyclists**, and public transport users
- Measures from the transport strategy will be incorporated into the new Local Area Plan for Maynooth and its environs
- The document presents information based on Census 2016 to give an indication of the existing transport situation in the Maynooth. When developing the transport strategy, 2021 data will be used which is currently being collected.

The study area for the transport strategy is shown in the figure below, with the Moygaddy land holding highlighted in dark blue:

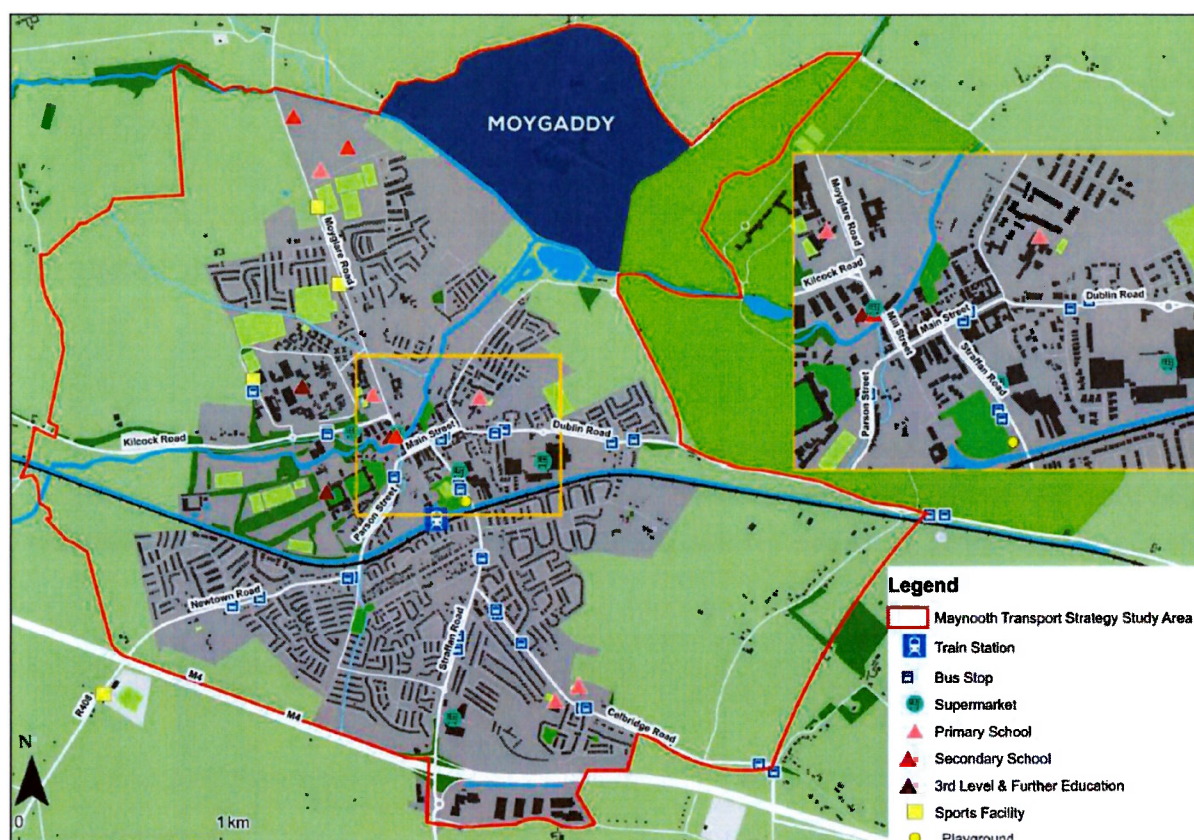


Figure 2: Transport Strategy Study Area

Several infrastructural upgrades are proposed as part of the development of the Moygaddy lands, which will have a direct impact on the town of Maynooth. These upgrades will be linked with the phasing plan discussed in Section 1 of this document.

The figure below indicates the road upgrades linked to specific phases of the development:



Figure 3: Moygaddy Development Phasing

As part of the proposed development, the following infrastructure upgrades will be introduced:

- Construction of the Maynooth Outer Orbital Route (MOOR) from **the existing section already constructed at Moyglare Hall, crossing the River Rye and Moyglare Stream and connecting to the R157 at the junction with the L6219 to include pedestrian and cycle facilities;**
- Upgrading of the R157/L6129 junction **to a signalised junction that includes pedestrian and cyclist crossings;**

- Upgrading of the L6219, **which will include pedestrian and cyclist infrastructure within the scheme area;**
- A new bridge section on a portion of the MOOR, over the adjacent River Rye that crosses into the jurisdiction of Kildare County Council at Moyglare;
- Segregated cyclist and pedestrian infrastructure along the MOOR;
- A shared pedestrian/cyclist path along the frontage of the SHD development along the L6219;
- A pedestrian and cycle bridge over the Moyglare Stream to link the residential SHD scheme with the new public park at Moygaddy Castle;
- **A new bridge crossing the Moyglare Stream as part of the MOOR that will accommodate vehicular, pedestrian and cyclist movements;**
- Dedicated crossing facilities that will accommodate pedestrians and cyclists at all junctions along the proposed MOOR;
- A new pedestrian and cycle bridge at the Kildare bridge which will link the Moygaddy lands with the network in County Kildare.

As part of the masterplan, a submission has been made to BusConnects, to advise them of the proposed development at Moygaddy and to request that due consideration be given to the expansion of the network to include the Maynooth Environ lands so that public transport services are extended to the new developments.

4 IMPACT ON THE MAYNOOTH TRANSPORT STRATEGY

The following benefits to the Maynooth Transport Strategy are expected as part of this development:

- Improvements to the connectivity in the area of the development;
- Increase in capacity of roads and junctions in the immediate vicinity;
- Provision of dedicated pedestrian and cycle infrastructure, enabling a strong modal shift towards sustainable transport;
- The upcoming proposals will also allow the BusConnects proposal to take account of the new infrastructure and further service the Maynooth area.

As part of the planning application for the this development, OCSC have been commissioned to prepare a Traffic Impact Assessment Report and associated traffic models. A copy of this report will be provided to both Meath County Council and Kildare County Council in ordinary course.

In summary, the infrastructural upgrades proposed as part of the Moygaddy development will have an overall positive impact on Maynooth and its environs.

5 VERIFICATION

This report was compiled and verified by:

Wian Marais BE (US), BE (Hons) (UP), Professional Engineer (ECSA)

Civil Engineer

O'Connor Sutton Cronin & Associates





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Appendix E **BUSCONNECTS SUBMISSION**

Bus Connects
National Transport Authority
Dún Scéine
Hardcourt Lane
Dublin 2
D02 WT20

15/11/2021

Ref: T-SMG

Project No. S665



RE: Maynooth Transport Strategy (MTS)
Our Client; Sky Castle Limited
Maynooth Environs – Lands At Moygaddy, Co, Meath, Maynooth

Dear

We are writing to draw your attention to our client's submission to the Maynooth Transport Strategy (MTS) review initiated by Kildare County Council.

We enclose a copy of the submission to the MTS for your information.

We would like to draw your attention to the opportunity to expand the public transport network to include Bus Connects as part of the strategic Residential and Employment lead developments proposed on our client's landholding at Moygaddy Co. Meath which forms part of the Maynooth Environs.

We would welcome the opportunity to speak with you about this initiative and we look forward to your feedback in early course
Yours sincerely

Shane McGivney
Chartered Engineer
For O'Connor Sutton Cronin

CC. Ronan Barrett, Sky Castle Limited

cc. Meath County Council

cc. Kildare County Council

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Administrative Associate: Carrie Poettcker

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Appendix F **KILCLOON TRAFFIC CALMING SCHEME DRAWING PACK**

Sl. No.	Date	Agreement/Issue	PC Tk	PT
101	09/06/2022			

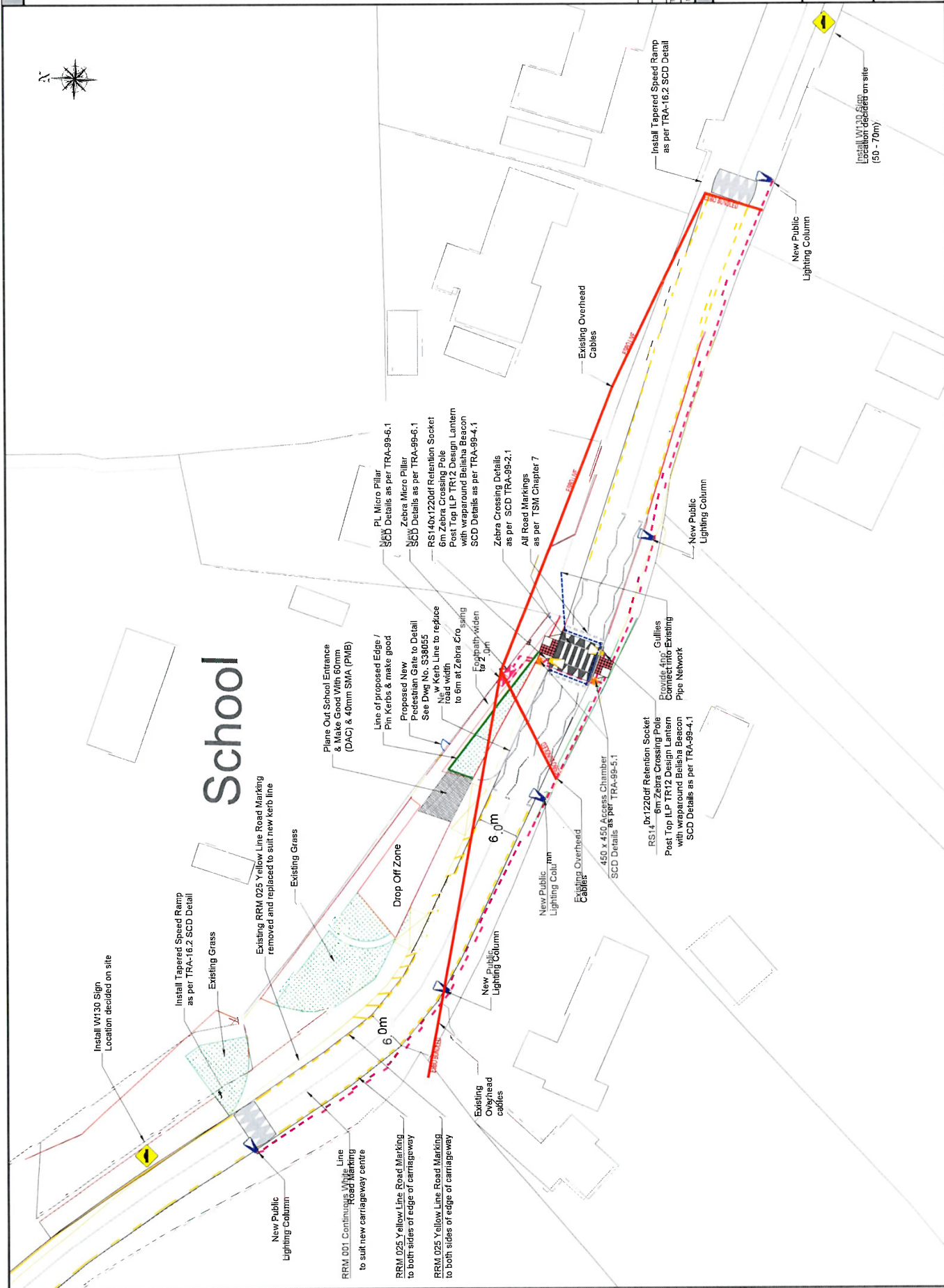
Meath
County Council

Pedestrian Crossing at
Kilcloon National School

Drawn by	Checked by	Approved by
PC	TK	P. Trappe

File Reference: TRA-04-012 04-99

250	A	
1500	A	
63803	T0	R6V



Indian Lane Street 25250 N 25th Ave NW Proposed Drainage to Connect to Existing Network

- 6m Column_Past Top of Fall
- ESB Networks Pole
- - - Public Lighting 107mm Duct with draw rope
- - - ESB Networks 50mm Duct with draw rope

LEGEND

comhairle chontae na mí
meath county council

A1

GENERAL NOTES

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2. Unless stated otherwise, all levels refer to Ordnance Survey Datum. Main Head and all coordinates refer to Irish Transverse Mercator (TM) SNG.
3. DO NOT SCALE. Use figured dimensions only, if in doubt ask.
4. All Dimensions shown are in millimetres unless stated otherwise.

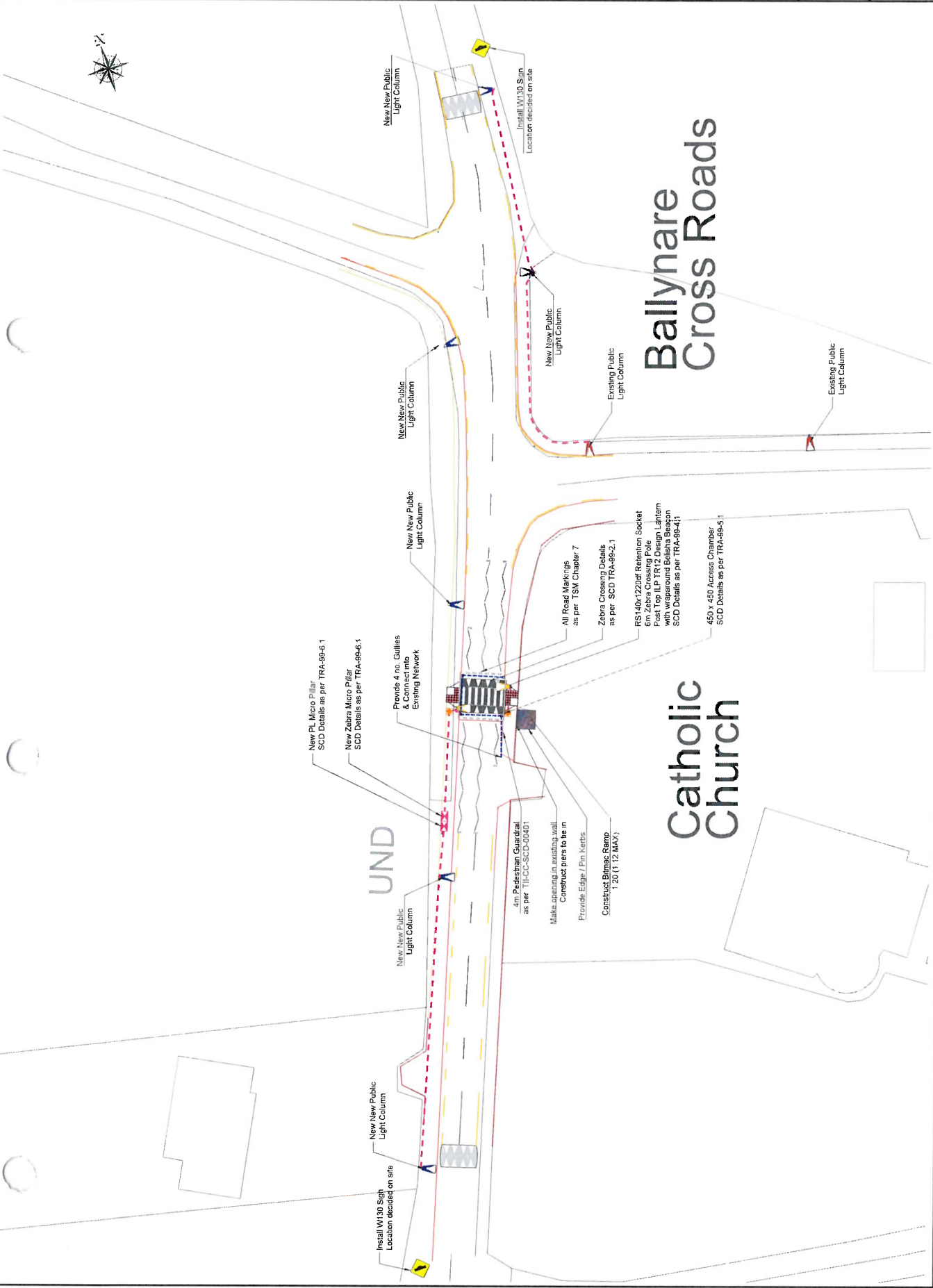
No.	Date	Amendment / Issue	PC	TK	PT
T01	30/06/2022	Final Issue			
No.					
Stage					

Comhairle Chontae na Mí
Meath
County Council
Barrack House, Dublin Road, Naomh, Co. Meath, C15 1261
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Project:
Kilcloon Traffic Calming Scheme

Title:
Pedestrian Crossing at Kilcloon Catholic Church

Drawn by	Checked by	Approved by
PC	TK	P-Trippie
File Reference	TRA-04-01204-99	
Scale	1:250 @ A1 1:500 @ A3	Rev
Date	10/05/2022	DG3804
		T01



Proposed Drainage to Connect to Existing Network
Existing Overhead Network

- Phila LinnStreet_LBSS12_LDR0_L3_24m_32W 6m Column_Post Top_1711
- ESB Networks Pole
- Public Lighting 107mm Duct with draw rope
- ESB Networks 50mm Duct with draw rope

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This Drawing may contain Ordnance Survey Ireland Mapping
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0 10 20 50 100

A1

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3. DO NOT SCALE use figured dimensions only if in doubt ask.
4. All Dimensions shown are in millimeters unless stated otherwise.

Single Leaf 90° Left gate of width required 1.0m high x 1.5m wide in-filled with 20mm Bar 60mm solid round bar. Frame 60 X 50mm SHS Mitred corners with fully welded joints in full to be affixed to frame by full welds or by clips as specified by Irteng® to be supplied with Irteng® drop bolts and receivers, adjustable Irteng® hangers, and Sliding Bolt/Adjust Bolts locking system. Installed to Gate Posts of 100 x 100 + 10mm Angles. Finish: Galvalume & Powdercoated (Fluoropolymer). Colour: Blue RAL



		Tender Issue	PC TK PT	Cik Ase
No.	Date	Awarding / Issue	Unit	
01	30/06/2022			

Comhairle Chontae na Mí
Meath
County Council



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Kilcloon Traffic Calming Scheme

Proposed New Pedestrian Gate At School

Library	Checked by	Approved by
PC	TK	P. Trappe
File Reference		
P-040-12-04-39		
Scale	REV	T01
1:50 @		
1:100 @ A3		
DATE	09/03/2022	53805



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